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THE MILITIA.

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*General and Comrades :*

I am under a species of promise to come to you to read a paper\* on some professional subject which it was supposed might prove of permanent value by reason of my large and varied experience. Whenever I approach any matter necessitating labor and study, I shrink from it, feeling disposed to claim all the advantages of retirement, certain that we may safely leave the future in the hands of the bright youth we see growing up around us. Every age produces its own workers, and the experience of mankind is that the agents of a former epoch are rarely adapted to modern uses.

The older I become, the more convinced am I that whilst the ambitious among our brethren naturally yearn for the difficult, the recondite, the good of the country calls for the practice of the simpler and easier parts of our profession ; that the officer who has schooled himself into the habit of obedience to orders, respect for authority, and to bear patiently the flings of adverse fortune, is more valuable to an army than one who can calculate the phases of an eclipse, or measure the sun's distance by the transit of Venus. All real knowledge is of as much value to the soldier as to the lawyer or statesman, and I must not be construed as draw-

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ing invidious comparisons between the different branches of the Service, for comparisons are always "odorous." Yet I repeat that whilst we are justly proud of our scholarly soldiers and gentlemen, we believe that the country rather prefers that the Regular Army in time of peace should preserve the traditions and habits of war, so as to become the leaven to the mass "in day and hour of danger," qualities special and peculiar to the profession of arms, and which can only be had by long training and practice. Let me illustrate my meaning better by an example that has occurred a thousand times, and will occur again. An army in motion finds its progress impeded by a small force occupying an advantageous position, a cross-roads, or farm-house. Some regiment is ordered to dislodge them. The colonel knows it may cost his own life, and it may be ten or twenty per cent. of his command killed, or, worse still, mangled for life. If he be a logician, he will argue that some other should do the job; but if he be the "soldier," he will reconnoitre the ground, calculate the chances, and do the work at the time appointed with the least loss possible. Every man, be he private or general, values his own life at the maximum, and though he may often have sung the song that it is sweet to die for his country, yet he cannot but think it hard luck to get crippled for the convenience of his fellows behind out of reach of danger. Our people who live in their comfortable homes in cities or on their farms, who pay their taxes with commendable regularity, are now, as they always have been, willing to recognize this quality in the soldier during war, but are apt in peace to forget that to bring up the average man to the sticking point, previous training and the cultivation of the habit of obedience and self-sacrifice are indispensable. I am convinced by actual experience and study that *habit* is a more valuable quality than what is termed *courage*. Take a hundred of the bravest men, unaccustomed to the confusion of battle, march them up against my supposed breastwork at the cross-roads, and they will break, drop to the ground, behind a tree, a log, or a hill, sooner than would a hundred average men of the Regular Army that had become *accustomed*, habituated to obey the common orders to "fall in," "forward," "charge," etc. On this simple principle of *habit*, in my judgment more valuable than courage, or even patriotism, rests the existence of the Regular Army to-day in this grand Republic.

Fortunately, as a people, we occupy the most enviable posi-

tion among the nations of earth. We have no foreign enemies. We can at leisure study their systems, adopt what suits our purposes, and reject the surplus. Our wars are spasmodic and short, whilst the resulting periods of peace are long, affording ample time for study and preparation for the "next war."

Professional soldiers believe that in the providence of God wars are inevitable, and have in the past accomplished the largest strides toward national fame, glory, and safety; and we have a perfect right to study all their phases, so as the better to be prepared for whatever the future may have in store for us. The young must keep their muscles strong, their brains clear, and their hearts pure and cheerful. The old can only give counsel and the benefit of experience, cheer up the despondent, and check the over-sanguine.

In this connection I propose to offer a few examples from my own personal experience, which I am sure have had an influence on their comrades, even after they had passed from life. History is philosophy teaching by example, and biographies, memoirs, and even novels teach how various motives and external objects have influenced individual action in the past, and are likely to be repeated in the future.

When I went to West Point, in 1836, Albert E. Church was the Professor of Mathematics, and an admirable teacher he was. His principal assistant was 1st Lieutenant W. W. S. Bliss, of the 4th Infantry, who had charge of the two higher sections of the Fourth Class, so that I fell under his immediate instruction. His manner and appearance were not military, according to the fashion of that day, for he was careless in dress, in his walk, and he had an impediment in his speech, which amounted at times to "stuttering," but this gave point to his words whilst he was imparting to us the precise rules of arithmetic, algebra, and geometry. We soon realized that he was master of his subject, and that he measured each of us pretty fairly, according to our capacities for imbibing knowledge. Still, I confess that I felt a sense of relief when Professor Church came, as he occasionally did, to our section-room, because he had a special skill in making easy and clear what seemed obscure in the text-book.

Bliss was called "Perfect Bliss," after a popular cordial of that name—not that he was fond of it, for, on the contrary, he was a most temperate and exemplary man.

During his vacation, in the summer of 1838, he went to his

home in New Hampshire, where political excitement was at boiling heat. The orators of that day were assailing the administration for what they styled extravagance for paying useless Army officers in gold, whilst the people must be content with shin-plasters, bank-notes, and treasury bills. They said lieutenants were paid seventy-six dollars a month, *all in gold*. One of the administration orators, who had to meet this dreadful charge on the stump, applied to Bliss for the exact truth. He explained that he was a 1st lieutenant, that his pay was thirty dollars a month and *found*. This was literally true at that time, when an officer's pay consisted of so much for pay proper, with cash allowances for a servant, clothing, rations, etc., etc., aggregating for a 1st lieutenant about \$76 a month. Thus armed, the orator could meet his constituents, who thought \$30 a month and *found* was a reasonable compensation, who would have been shocked by \$76 a month, *all in gold*. Thus it may have been that by a mere grouping of words was saved to the military service a man who, in after-life, brought honor and fame to our country. In time he was appointed an assistant adjutant-general, was attached to the staff of General Taylor in the Mexican War, afterward married his daughter, Betty Taylor, and became the private secretary to *President* Taylor. His despatches during the Mexican War are models of neatness, precision, and force, and may be studied today by the military student with profit.

President Taylor died in office in July, 1850, shortly after which Bliss was transferred to the staff of General Twiggs in New Orleans, where I again met him during the winter of 1852-3, and enjoyed the inestimable advantage of his society and that of his beautiful and accomplished wife. Early in 1853 I went to California on a private enterprise, and though we corresponded we never met again in life, for he died at his post of duty in the terrible scourge of yellow-fever at New Orleans in 1853. Recently, in overhauling some old chests of papers, I found several of his letters in a chirography which would do credit to a writing-master, but infinitely more precious to me by reason of the purity of his diction and the sweet expressions of personal affection. Perfect Bliss! I gladly pay this tribute to thy memory, and ask young officers who hope to become heroes to remember that all life is but a pyramid, and they should treasure the fame of such men as Bliss, on which our common Army reputation rests. I wish again to speak of my classmate, Job Robert Hamilton



Lancaster, of whom I once spoke at West Point, but the news reporters made sad havoc with what I *did* say, for following the sound they made him out Jo Blancaster. Fortunately, some were present whose memory went back to 1840, prominent among them our genial friend, Professor Kendrick, who remembered my subject well. His parents were good, plain, honest farmers of Hamilton County, Ohio, who by some means had obtained for him the appointment as a cadet in the class of 1836. He was at the time near the limit of age—twenty years,—was full six feet five inches high, and weighed over two hundred pounds. A better-natured fellow was never begotten, or one with a better head and heart. He soon took rank with the First Section, and graduated number seven in the same class with me. But meantime, in the summer of 1838 (our furlough year), his parents were too poor to spare the money needed for him to visit his family in distant Ohio, but I was more fortunately situated and had my regular furlough. Some of my old school-mates were at Oxford College, and I went there to see them. Among the college students I found two of Lancaster's brothers. One hot day in July, the elder of these brothers (Hugh) came to me and said his father was in town, and wanted very much to see me about his son, *Cadet* Lancaster. I at once went with him to a tavern on the border of the town of Oxford,—a *temperance* tavern,—where a large, strong, robust man lay on the bench in the shade asleep. The son shook his father, saying: "Father, father, here is Cadet Sherman, who knows brother Robert." The old man awoke, arose to a sitting position, and, regarding me earnestly, said: "You know my boy Robert? How is he getting along?" I answered that he was getting along fine, was high in "Math.," so-so in French, and was the most popular man of his class. "Well," said he, "I would like to see my boy, but I have not the money to spare to enable him to come home. I have a large family, and I want to do right by *them all*, but I get reports of him every month from the 'Pint,' and I don't like the black marks, for he was raised 'pious,' his mother *is* pious, and I'm afraid the boy is going to the bad." "Mr. Lancaster," said I, "it may be that you don't understand those black marks; they do not imply any thing immoral; on the contrary, they are simply what the military martinets of West Point construe as neglects; thus, if his coat is not properly buttoned on parade, it is one demerit; if his shoes are not clean,

another; and should he visit a fellow-cadet in study hours, it would be five demerits, and so on. The old man took a long breath and exclaimed: "Do tell! Why, at home he never had blacking at all, but greased his own shoes. He never had much schooling, and worked on the farm. Indeed, Mr. Sherman, you have raised a heavy load from my mind, because I feared my boy was getting bad."

This good old man died in 1840, and I shall ever feel that I did a good act in relieving his mind of a serious trouble. We all graduated in June, 1840, and were ordered to our homes to await assignment to regiments and duty. This occurred in the midst of one of the most extraordinary contests for President ever held in the United States, the "Tippecanoe and Tyler too" campaign, with its cabins and hard cider. Lancaster, then a graduate, attended a meeting at Hamilton, Ohio, and heard himself and fellows denounced as "Wasp-waisted Vampires, sucking the life-blood of the nation," and other like epithets. He was in citizen's dress and remarked to a bystander: "I am one of them." This gentleman proved to be a friend and managed to get Lancaster on the stand, whence in a pause of the proceedings he called aloud: "Here is one of your 'Wasp-waisted Vampires.'" At that moment he was twenty-four years old, in his very prime of manhood, six feet five in his stocking-feet, and with the strength of a giant, able to take any two men of the audience and butt their heads together, with a waist which would have required a horse's surcingle to compass. Silence resulted, and finally a shout went up which disturbed the impassioned orator. Such was the story which came to us, and we believed this was a link in the chain of events which saved West Point from the real danger of 1840. Lancaster joined his regiment, the First Infantry, in the fall of that year, was killed by lightning whilst in a boat, July 5, 1851, and one of the last letters he ever wrote was to me, his classmate and friend "Cump. Sherman," and on its envelope was inscribed a notice of his death, penned by a brother officer.

In the summer of 1844 the head-quarters and four companies of the Third Artillery were stationed at Fort Moultrie, S. C. The pay of a Second Lieutenant was \$65 a month, and that of a First Lieutenant \$76. We found it hard work to make ends meet and yet fulfil what we believed our social duty. Some of the artillery officers thought by an appeal to Congress an in-

crease might be obtained. First Lieut. Braxton Bragg, one of our officers, was in correspondence with the officers of the Artillery School, then, as now, at Fort Monroe, and it was agreed to make such an appeal through Mr. McKay, of North Carolina, the Chairman of the Committee on Ways and Means, the very "watch-dog" of the Treasury, and Mr. Stephen A. Douglas, then a rising man in Congress, from Illinois. The necessary petition was duly prepared and signed, and Mr. McKay was invited to stop over at Fort Monroe to accept the hospitality of the officers on his way to Washington. A splendid entertainment was got up for him for which all were taxed, and Mr. McKay did stop over, was handsomely entertained, and was made to understand the pressing wants of the Service. In due time the bill was prepared and submitted, but was defeated by an overwhelming vote; Mr. McKay opposing on the very ground that the artillery officers could not possibly be so poor, because he himself had recently been entertained by them more sumptuously than he could have been in Washington. "We were hoist by our own petard."

Members of Congress are men like ourselves, influenced by personal as well as public considerations, and it is *always* wrong for army officers to appeal to them for personal favors. I have known in the old, as well as recent past, officers to obtain transfers and even promotion by reason of their friends in Congress, but I do not recall a single instance where such temporary success resulted in permanent advantage. The army has its Common Law as well as its Statute Law; each officer is weighed in the balance by his fellows, and these rarely err. In the barrack, in the mess, on a scout, and especially in a battle, a man cannot—successfully—enact the part of hypocrite or flatterer, and his fellows will measure him pretty fairly for what he is.

Of all the qualities which adorn the human character, easiest of performance and most certain to bring its reward, is "Fidelity to trust."

To illustrate this truth, I select out of my past acquaintance my classmate and friend, George H. Thomas. He came to us from the region of the dismal swamp of Virginia,—Newsom's Depot,—which we in boyish mischief translated into Nuisance Depot. He would blush like a girl, but never resented the insult to his birthplace by angry words or gestures. As a cadet, his life was normal and uneventful, but it was told of him

that, during the Nat Turner insurrection, he had displayed a courage which attracted the notice of General Jackson, which secured him his appointment to West Point. On graduation, he and I were thrown into the Third Artillery, served together in Florida, and afterward at Fort Moultrie, till the Mexican War took him to General Taylor's army—whilst I was sent to California. His long service has been so well written that I need not repeat it. His fame, as recorded in statue and story, is as well secured as that of any man of my time, and I make use of his name in this connection only to point a moral, *not* to adorn a tale. No man now living, and in the full possession of all his faculties, can comprehend the condition of public feeling in the winter of 1860-61; and the strain that was brought to bear upon the Army officers of Southern birth and Southern affiliations to shake their allegiance to the National cause, was such as to test human endurance. Some yielded and others remained firm—among whom was George H. Thomas. He saw clearly, that in the sea, tempest-tossed by the wild passions of men let loose, there was no safe compass but the Union and the National Government. There was a period, about February, 1861, when it seemed possible that a compromise might be attempted to organize two, if not four, governments out of the fragments of what was claimed to be a disrupted Union; and it must have been during this period that Thomas applied to Col. Frank Smith, of the Virginia Military Institute, for employment, as reported by Fitz-Hugh Lee; but the instant Mr. Lincoln became installed as the Constitutional President of the United States, and declared his purpose to maintain the whole Union, with the Constitution we had inherited from our fathers—peaceably, if possible, but forcibly if necessary,—Thomas brushed aside the subtleties of the hour and declared his purpose to be true to his flag and to his profession, like the knight and gentleman he was. Victory and success crowned his valor and fidelity, and his name will be spoken with honor as long as the starry flag floats from a single mast-head on the high seas, or on a single staff on the land. This is the lesson I would impress on the younger officers who were children in the dread epoch which preceded the Civil War,—to be ever true and faithful to their oaths and to their flag. Even governments composed of human elements may err, but it is not for the sworn officer to offer his single judgment in opposition to the lawful authority. His duty is simple and plain,—to

obey cheerfully and intelligently the orders he may receive from those appointed over him.

These sketches are somewhat preliminary to the real object of this paper, which is meant to be a continuation of the subject so ably discussed in the September number of the *JOURNAL OF THE MILITARY SERVICE INSTITUTION* for 1884, "On the Military Necessities of the United States, and the Best Provisions for Meeting them." All parties agree that it has become the settled policy of our Government to maintain the smallest kind of a Regular Army, more as a school of instruction than for actual service, which Army, in case of invasion, insurrection, or rebellion is to be supplemented by the "Militia." Inasmuch as the Militia is the physical force on which the Executive of the nation must mainly depend for the execution of his high office, which commands that he shall preserve, protect, and defend the Constitution of the United States, and take care that the laws be faithfully executed, it becomes our duty as soldiers and citizens to aid, as far as we may, to mould that Militia into a form in which it may be made available when called into active service.

By our Constitution the Congress of the United States is empowered to raise and support armies, to provide for calling forth the Militia to execute the laws of the Union, suppress insurrections and repel invasions, and to provide for organizing, arming, and disciplining the Militia. To illustrate how well these high functions have been performed by our Congress, I must ask your indulgence to quote a few paragraphs from the Revised Statutes of the United States, certified to be the law of the land, by our most honored fellow-citizen, the Hon. Wm. M. Evarts, when Secretary of State.

Page 285, under the head of

"THE MILITIA."

*Sec. 1625.*—Every able-bodied male citizen of the respective States, resident therein, who is of the age of eighteen years, and under the age of forty-five years, shall be enrolled in the militia.

*Sec. 1626.*—It shall be the duty of every captain or commanding officer of a company to enroll every such citizen residing within the bounds of his company, and all those who may from time to time arrive at the age of eighteen years, or who, being of the age of eighteen years and under the age of forty-five years, come to reside within his bounds.

*Sec. 1627.*—Each captain or commanding officer shall, without delay, notify every

citizen of his enrolment, by a proper non-commissioned officer of his company, who may prove the notice, and any notice or warning to a citizen enrolled to attend a company, battalion, or regimental muster which is according to the laws of the State in which it is given for that purpose, shall be deemed a legal notice of his enrolment.

Sec. 1628.—Every citizen shall, after notice of his enrolment, be constantly provided with a good musket or firelock of a bore sufficient for balls of the eighteenth part of a pound, a sufficient bayonet and belt, two spare flints, and a knapsack, a pouch with a box therein, to contain not less than twenty-four cartridges suited to the bore of the musket or firelock, each cartridge to contain a proper quantity of powder and ball; or with a good rifle, knapsack, shot-pouch, and powder-horn, twenty balls suited to the bore of his rifle, and a quarter of a pound of powder, and shall appear so armed and accoutred and provided when called out to exercise or into service, except that when called out on company days to exercise only, he may appear without a knapsack. And all arms, ammunition, and accoutrements so provided and required shall be exempted from all suits, distresses, executions, or sales for debt or for the payment of taxes. Each commissioned officer shall be armed with a sword, or hanger and spontoon.

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Sec. 1661.—The annual sum of two hundred thousand dollars is appropriated to be paid out of any money in the Treasury, not otherwise appropriated, for the purpose of providing arms and equipments for the whole body of the militia, either by purchase or manufacture by and on account of the United States.

The Adjutant-General reports the Militia force in 1884, "organized and unorganized," as 6,797,006 men. Such are the laws to-day, and this is the Army, subject to call on a day's notice, to which every citizen between the ages of eighteen and forty-five belongs. Consider for an instant the effect should the captains put in motion the enforcement of this law—for we are a law-abiding people.

The Winchesters, Colts, and Remingtons would have to dismantle their present establishments, and search in old museums for the models of arms, accoutrements, bullets, flints, and powder-horns which have passed out of the memory of the present generation. We often laugh at the Chinese for sounding their gongs, turning somersaults, and casting their stink-pots to scare away their outside barbarian invaders. Yet these are not more ridiculous than would be an old-fashioned Militia muster as required by existing statutes. Such a company or regiment "paraded" through any city, town, or village of America would be hooted and reviled by all the boys of the neighborhood. Even Falstaff's command, which he would *not* march through Coventry, were respectable in comparison with a company of our Militia with corn-stalk muskets and feather cockades. This should not be the case in this modern utilitarian age, and it affords me



pleasure to invite your attention to a bill introduced into the present Congress by our comrade, General H. W. Slocum, M. C. from Brooklyn, perfectly in the line of the articles published in your JOURNAL for September, the passage of which would be a long stride in the direction of the change we advocate. In order to make convenient comparison, I quote from this bill the sections which correspond with the existing statutes already quoted. The bill is numbered H. R. 5,980, entitled: "To Promote the Efficiency of the Militia of the United States."

*Sec. 1625.*—Every able-bodied male citizen within the ages of eighteen and forty-two, resident within the respective States and Territories, shall be subject to enrolment in the militia thereof, as may from time to time be prescribed by its laws.

*Sec. 2.*—That such uniformed and regularly enlisted troops in the several States and Territories as are or may be organized therein in pursuance of the laws thereof respectively shall be known as the "Active Militia," and shall alone be considered in estimating any benefit to be received under this Act. Provided, That any State or Territory in which such corps shall exist shall be entitled to include the organizations authorized by Section 1641 of the Revised Statutes (if uniformed) in the number to receive the benefits of this Act. Any other militia that may be enrolled by any State or Territory shall be known as its "Ununiformed Militia."

*Sec. 3.*—That enlistments in the Active Militia shall be for at least three years, but re-enlistments may be for a shorter term. All enlistments shall provide that in case the period should expire when in the service of the United States, the same shall continue until the expiration of the time for which the militia shall be called into service.

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*Sec. 11.*—That the annual sum of six hundred thousand dollars is hereby appropriated to be paid out of any money in the Treasury not otherwise appropriated, for the purpose of providing arms, ammunition, service-dues and equipments, other ordnance stores, and camp equipage for the Active Militia of the several States and Territories, and for the other purposes covered by this Act, etc., etc. No State or Territory shall receive any apportionment of the appropriations made by this Act for any number of its Active Militia in excess of seven hundred regularly uniformed officers and enlisted men for each representative in Congress to which each State and Territory may be entitled in the Congress of the United States.

The whole bill substantially repeals the old, antiquated system of Militia devised by our revolutionary fathers, and substitutes a new one far better adapted to our modern experience. Whilst enrolling all men subject to militia duty, it leaves the great mass "at home," and segregates a smaller number to fulfil the purposes of our Constitution, to be properly armed, equipped, and accounted; and appropriates for this purpose the annual sum of \$600,000. This sum, in my judgment, is inadequate, for if our eight millions of inhabitants in 1808 could afford \$200,000 for arming and equipping an impracticable body of



Militia, our present fifty-five millions of people can well afford a proportionate sum for a better and more practicable scheme, and a simple calculation in the rule of three will make the sum of 1,375,000 dollars.

Again, instead of seven hundred men for each member and delegate in Congress, I would suggest the more convenient and better-understood battalion of four companies, of a maximum of one hundred and minimum of fifty men for each company.

The total number of Congressional Districts and Territories is now, I believe, 330. This will give 1,320 companies, or 110 regiments of twelve captains each, aggregating a maximum of 132,000, or minimum of 66,000 men, a force amply sufficient for the probabilities of the case.

Taking this lesser number and assuming the cost of each militiaman at fifty dollars per annum (and I am assured that even this small figure will be most acceptable), will make an aggregate cost of \$3,300,000. I would divide this sum equally between the United States, the States, and the communities in which any company, battalion, or regiment resides. This will give the United States \$1,100,000; for all the States, \$1,100,000; for the communities, \$1,100,000; or a charge on each Congressional District and Territory of \$10,000.

Congress may not be able to compel the States or communities to contribute their respective shares, but the clause of the bill as quoted, "and shall *alone* be considered in estimating any benefits to be received under this Act," will be found a powerful lever with the States in inducing them to conform to the general system.

In my experience the communities always take a special pride in their Militia, and always contribute liberally and voluntarily to their support. In St. Louis the citizens have recently, at their own expense, erected a strong, commodious, and handsome armory, at a cost of \$60,000, and more recently have contributed \$14,000 annually for the maintenance of the regiment of Militia, which is a most creditable body of soldiery, without material aid from the State or city treasuries. This makes the cost of maintenance fall heavily on the few, whereas it should be borne equitably by the whole people of the United States, because a well-regulated Militia is declared necessary to the security of a free State (Art. 2, Amendments to the Constitution), and is universally regarded as an essential requisite to every government.

People are as much governed by antiquated habits and thoughts as they are by statutes, and most of our political sentiments can be traced back to our mother England. The Militia there as well as here was the subject of wit and satire, if not of downright ridicule.

In Walter Scott's "Pirate," you will find, as quoted from Dryden, these lines :

Mouths without hands maintained at vast expense ;  
In peace a charge, in war a weak defence ;  
Stout once a month they march a blustering band,  
And ever—but in time of need—at hand.

One of George H. Derby's pieces of wit, as told in the early days of California, was perpetrated at a banquet, when he gave as a toast :

" The Militia."

"Invincible in peace, invisible in war, they only  
want an opportunity, but may they  
never be wanted."

So long as we construe the whole mass of our citizens between the ages of eighteen and forty-five to be *soldiers*, they will continue to be the subject of ridicule ; but segregate from this mass the young and willing, properly arm, accoutre, and drill them, and they will soon rival the Regulars in appearance, if not in action. Nearly all the officers who now compose this Institution can recall our experience with the new regiments, as they came to us raw, inexperienced, and undisciplined, and how soon, by association with older regiments, they became thorough soldiers. They were not the Militia provided for by law, but were "volunteers," the very class of men out of which General Slocum's bill proposes to organize the "Active Militia." Enough of the old captains and sergeants yet remain to impart the necessary instruction, and this knowledge will be repeated and perpetuated, so that, when the Militia is called into service by the State or by the United States, it will be an intelligent force, which will soon command respect. Many of the States now maintain a Militia of this nature under the name of "State Guard," and the bill proposed by General Slocum will aid these existent troops, and make one uniform system throughout the United States.

The late General Upton during his life was engaged in the preparation of a book entitled "Military Policy of the United States," similar to that of Dr. Draper on the "Civil Policy," and

sent to me at Washington eight or ten chapters in manuscript for my own and General Garfield's perusal and criticism. We found in them a vast amount of most valuable matter, but General Upton's proposed remedies were too radical to be received with much favor by Congress, the only power which can provide the means for carrying into effect any system for the Army and Militia of our country; still the material collected by him was too valuable to be lost, and well might be published now, either in a separate volume or in serial numbers of THE JOURNAL OF THE MILITARY SERVICE INSTITUTION.

I believe there is no more important subject to-day for the members of this Institution than to assist in perfecting the "Militia," and in bringing it into more cordial relations with the Regular Army and people of the United States.

#### DISCUSSION.

THE PRESIDENT—*Gentlemen*: We have shared the pleasure of listening to General Sherman. In accordance with our custom, the meeting is now open for discussion.

GENERAL STONE (Stone Pacha)—*Mr. President*: I deem it a privilege to have been present here to-day to listen to the interesting and valuable paper just read by our great captain.

All must admit the vast importance to our country of the subject therein so instructively discussed.

No English-speaking community has ever yet submitted to the maintenance, in time of peace, of a large standing army raised by conscription; and as our people are, happily, too much occupied in other chosen avocations than that of soldiering, it must always be impracticable, in English-speaking communities, to maintain, in time of peace, a very large standing army by voluntary enlistment. Yet, in the present condition of the world, a powerful public armed force is often necessary to the public welfare, and therefore wisdom prescribes that such a force, ready to be called into action in the time of need, should be formed and fostered without encroaching on the productive power of the nation or the individual rights of the citizen. This can be done only by a proper organization and maintenance of the militia of the country, of which volunteer organizations like the regiments of the National Guard of New York and other States must form the nucleus, while the small Regular Army must form the nucleus of the whole body.

It is quite certain, to my mind, that any government, in an English-speaking country, whether it be that of the United States, that of Great Britain, that of Australia, or that of the Dominion of Canada, which shall attempt to keep up a large regular force by means of conscription will surely fall. Then it is to such countries that the military instruction of the able-bodied citizens is most important, and all broad discussion of the subject most useful.

In view of this importance of the subject, and of the ability with which it is treated in the paper just read, I move, Mr. President, that the thanks of the Institu-

tion be tendered to General Sherman, and that a copy of the paper be requested for preservation in the archives of the Institution and for publication in its Journal.

**GENERAL SICKLES**—*Mr. President* : I have the honor to second the motion made by Gen. Stone. The subject chosen by Gen. Sherman has been discussed by him with characteristic directness and force. We have not given much attention to the militia in this country, because we have seldom had much use for it. We have no powerful neighbors. We have no thirst for conquest. We usually enjoy domestic tranquillity. In other words, military discipline and efficiency are the offspring of necessity, which, happily, we have seldom felt. Hence, it may be observed that it is precisely in those States which have suffered most from riots, that we find most attention given to an effective militia. In the city of New York we have seen dangerous outbreaks and combinations against the laws,—and here we find a division of militia under Gen. Shaler admirably equipped, and maintained in excellent discipline. In Pennsylvania, since the riots which caused so much alarm a few years ago, her militia has been consolidated in one division under Gen. Hartranft, which is organized, uniformed, equipped, and drilled upon the footing of a permanent establishment. New Jersey, sandwiched between her two powerful neighbors, and sharing somewhat the requirements of both, has followed their example. The National Guard of New Jersey, whilst under the command of the late Major-General Gershom Mott, so well known to Gen. Hancock and to me, was a corps of which any State might be proud. If Ohio has not already followed in the direction of New York, Pennsylvania, and New Jersey it cannot be long before she will be constrained to do so, remembering the Cincinnati riots and the serious disturbances in her mining regions.

If the general government undertakes to establish a uniform plan for the organization, equipment, and discipline of the militia in all the States, I hope some provision will be made defining the relation of the militia to the Regular Army when called into service by the President. In theory, it has always been held out that the Regular Army was the nucleus of a large military force, of which the militia formed the reserves. But in the late war, the volunteers and the Regular Army were studiously kept apart, much to the prejudice of the Service. I endeavored, but in vain, to have regular officers of any grade assigned to the command of five regiments which I raised. Nor was I more fortunate in my request for a graduate of West Point to be assigned for duty, even temporarily, as a staff officer in my brigade. The answer of Adjutant-General Thomas was : " No. The Regular Army must be kept intact. The officers are all needed in their own regiments. They can't be spared." If captains of companies in the Regular Army had been put in command of the first hundred regiments of volunteers raised in 1861, the disaster of Bull Run and its consequences might have been averted.

**JUDGE ADVOCATE-GENERAL H. C. KING, N. Y.**—*Mr. President* : I cannot say that I am fully in accord with the provisions of General Slocum's bill, nor do I believe such a bill will become a law—at least, for some years to come. Without regard to party affiliation, there is a decided aversion in the States to the passage of any bill which has even the appearance of giving the Federal Government any control of the militia except as now provided by law. But there is a way by which the Federal Government can aid the militia—I mean, of course, the organized militia, or, as we style it, the National Guard—without offending the sensitiveness of the several State populations. It can appropriate money more liberally, and apportion it to the several States to aid them in keeping up a well-equipped, well-organized, and well-disciplined force. The Central Government owes it to the States and to itself to make better provision. There are some States, like our own (New York), for instance, which can get along without Federal aid. The Empire State has been generous, but none too generous, to

its citizen soldiery. In the last session of the Legislature, the appropriations were \$300,000 for the general care and support of the Guard, \$125,000 for service uniforms, and about \$400,000 for armories—an aggregate more than four times as large as the Federal appropriation for any one year. I do not speak, therefore, in behalf of New York, but for the poorer States, in a great number of which there is actually no military organization worthy of the name.

It is very gratifying to see so great a soldier as General Sherman manifesting a deep interest in this matter. The country at large must soon begin to appreciate the value of a trained body of citizen soldiers; and when universal public sentiment manifests its appreciation, the honor of belonging to such a body will be largely sought by every patriotic, law-abiding young man. Pennsylvania sorely lamented the absence of such a force in 1877, and New York rejoiced that its National Guard was equal to the emergency. It prevented the destruction of property, and overcame mob violence without the sacrifice of a single life in either the militia or the rioters.

Gen. JAMES B. FRY.—*Mr. President*: There are many indications of a deep-seated purpose to have the country derive permanent advantage from the military lessons of the War of Rebellion while the principal actors in the great struggle are spared to us as teachers. The able paper to which we have just listened adds to the proofs that there is a widespread feeling in favor of doing something more than has yet been done to promote the military interests of the country. It is in response to that feeling that this Institution exists. The question is: Upon what should the friends of progress concentrate their efforts? I feel that I shall be in a small minority, when dissenting from the paper of the illustrious General of the Army, I answer, *not upon the militia*.

General Sherman (as I understand him), says all parties agree that it is the settled policy of our government to maintain the smallest kind of a Regular Army as a school of instruction; that in case of war the armies which Congress is empowered to raise and support must be supplemented by the militia; that the militia is the physical force on which the chief magistrate of the nation must mainly depend; that it is our duty as soldiers and citizens to aid as far as we may to mould the militia into a form in which it may be made valuable when called into active service; and he advocates a bill, now before Congress, for reorganizing and making an appropriation for the militia. With due deference to the high source from which these views emanate, I venture to express dissent from some of them. I do not underestimate the value of military organization and instruction among the people, for it is to the people the government must go in one way or another for its defence and support. But the trouble, as I see it, is that the general government can accomplish no appreciable good under its power to provide for organizing and disciplining the militia. Militiamen are not 'troops,' or 'soldiers'; they are armed civilians, the arms-bearing citizens of the various States. They constitute a *State* force of which the Governor is commander-in-chief. The character of this force is not changed by the fact that it may for a limited time, and for specified purposes, be placed on detached service under the President of the United States. The Constitution clearly separates and distinguishes the militia from the "Armies" of the United States. It says: Congress shall have power, 1st, to provide and maintain a navy; 2d, to raise and support armies; and 3d, to provide for calling forth the militia. If General Sherman is correctly reported, he said in a letter to Governor Long of Massachusetts, in 1880, he was "more than willing that the organized militia and volunteers of the country shall be considered as a part of the army of the United States." I am unable to perceive how the militia can be considered a part of the Army, or how any one of the three species of force which the general government is authorized by the Constitution to use, can be considered part of either of the other two.

The power given to Congress by the Constitution to provide for organizing and disciplining the militia, is in fact a nullity, because the militia is composed of the arms bearing citizens of the States, and the Constitution reserves to the States the right to appoint the officers and train the militia, and the Governor of the State is the militia's commander-in-chief. It is not practicable for the general government to control the militia, even so far as to establish uniformity throughout the different States. If uniformity were attempted in earnest, the general government would be compelled to set up a standard and then seek conformity to it by force of law. It will no doubt be admitted without argument that forcible process is not practicable if it were constitutional; so that the question is narrowed to the simple inquiry, should the general government set up a standard of proficiency for the militia of all the States and make itself responsible for securing conformity to that standard by persuasion,—by offering inducements or rewards? Such a course suggests several grave questions. Congress has the right to appropriate money for *arming* the militia, but its right to appropriate prize-money to induce militiamen to improve in the profession of arms may well be questioned. If the general government fixed a standard, and sought conformity to it in any way, even through temptation to share in appropriations, it would necessarily incur responsibility which might lead to annoyances and even serious complications. It may fairly be held that the military purposes for which Congress should appropriate money (except as specifically provided for in the matter of arming the militia) must be found under its constitutional power to raise and support armies, which is wholly separate and distinct from its power to call forth the militia and from its nominal power to provide for organizing and disciplining the militia.

The only purposes for which the general government can call forth the militia are, first, "to execute the laws of the Union"; second, "to suppress insurrections, etc."; and third, "*to repel invasion.*" Although offensive warfare as a necessary part of repelling invasion might be carried on to a limited extent by militia, the general government has no constitutional power to call forth the militia *for the purpose* of invasion, or for any other purpose than one of the three named.

In view of the foregoing facts, and others which I have not time to mention, I see no reason to believe that the military interests of the country can be improved materially by any effort of the general government to do more under its power to provide for organizing and disciplining the militia than it has heretofore done. All of importance that can be done toward organizing, disciplining, and instructing the militia, must, it seems to me, be done by the States.

It is well to bear in mind that although the militia has been severely let alone by the general government, the subject of its improvement has been under discussion ever since the government was founded. On the 21st January, 1790, President Washington submitted to Congress an elaborate report from his Secretary of War, General Knox, upon a well-organized militia, and a plan for securing it. General Knox said: "An energetic militia is to be regarded as the *capital security* of a free republic, and not a standing army forming a distinct class of the community"; but he admitted the impracticability of "disciplining at once the mass of the people," and added: "all discussions on the subject of a powerful militia will result in one or the other of the following principles: *First*, Either efficient institutions must be established for the military education of the youth, and that the knowledge acquired therein shall be diffused throughout the community by the means of rotation; or, *secondly*, that the militia must be formed of substitutes, after the manner of the militia of Great Britain." In 1792 the existing militia law was passed.

In 1803, a committee reported to the House that "after full investigation" they were of opinion that the law of May 8, 1792, "embraceth all the objects of a militia



institution delegated to Congress"; and they added: "the principles of that law lay the foundations of a militia system on the broad basis prescribed by the Constitution, and are well calculated to insure a complete national defence *if carried into effect by the State governments* agreeably to the power reserved to the States respectively by the Constitution; and therefore ought not to be altered"; and the committee recommended that the President "be requested to write to the Executive of each State" urging the importance of vigorous exertions by the State governments.

In 1806, a committee reported at length to the House, and closed by saying, "that it is inexpedient to adopt measures for the classification or new organization of the militia."

In 1809 another committee reported to the House, "that having carefully examined the subject referred to them, they are of opinion that it would not be proper, at this time, to make any alteration in the militia system of the United States."

In 1810 a committee reported to the Senate: "If the States are anxious for an effective militia, to them belongs the power, and to them belong the means of rendering the militia our bulwark in war and our safeguard in peace; and as the committee are willing to hope that the States will not be unmindful of the great duty of providing for the national safety by a well-ordered and effective militia, and as the committee are unwilling to declare any powers to Congress not expressly given by the Constitution, nor necessarily incident to the powers delegated, they submit the following resolution, viz.: *Resolved*, That the committee be discharged from further consideration of this subject."

The House also considered the subject in 1810, so far as to collect information upon it. It was in response to an inquiry from Mr. Tallmadge, of the House, at that session, that General Huntington, of Connecticut, who was an officer in the Revolution, a brigadier-general in the Provisional Army of 1798-9, and twice a member of Congress, said: "I have never seen any system proposed in which I have confidence; nor do I believe any system *commensurate to the object* will ever be adopted by the government, or, if adopted, be submitted to by the sovereign people. \* \* \* Let the government proceed to regulate the militia to the utmost length their masters, the sovereign people, will bear; it will be just so far as to make them food for powder in the day of battle; and death, or what is worse, loss of honor, must be expected by every officer of spirit connected with them."

In 1816 the Secretary of War communicated to the House a plan for organizing and disciplining the militia.

In 1817 Mr. Harrison reported to the House upon the two points: "*First*, Is it desirable that the whole male population of the United States, of the proper age, should be trained to the use of arms, so as to supersede under any circumstances the necessity of a standing army?" "*Second*, Is it practicable?" Upon these inquiries an able and elaborate report was made. The conclusions were that "the liberties of America must be preserved as they were won, by the arms, the discipline, and the valor of her freeborn sons"; that "nothing can be more dangerous in such a government than to have a knowledge of the military art confined to a part of the people, for sooner or later that part will govern"; that "there can scarcely be a restraint more vexatious and disgusting to a grown man than the initiatory lessons of the military art"; that "to this cause is to be attributed the little progress that has been made in training the militia of the United States"; and that there is "no prospect that any change of system could, with regard to the present militia, produce the result at which we aim." Hence the committee concluded that to establish a sound military system we must begin on the youth of the country; and that we ought "to devise a system of military instruction which shall be engrafted on and form part of the ordinary educa-



tion of our youth, extended without exception to every individual of the proper age—not in distant schools established for the purpose, but that it should form a branch of education in every school within the United States.”

In 1819 Mr. Harrison made to the House another full report upon the subject.

In 1822 the Committee on Ways and Means reported to the House: “It is not expedient at this time to increase the annual appropriation for arming the militia.”

In 1826 the Secretary of War, James Barbour, made an earnest effort in relation to the militia. He addressed a circular-letter to governors of States and other prominent persons for their views. He adopted it as an unquestionable political maxim, that “a well-organized and well-disciplined militia is the natural defence of a free people”; and added: “I am anxious to see a system adopted by the National Legislature which will realize the hopes of us all in reference to this great arm of national defence.” The many and elaborate replies he received presented various phases of the subject. No better authority responded than Timothy Pickering, who served with the Massachusetts militia in 1775, was a member of the Continental Board of War, Quartermaster-General in 1780, Postmaster-General in 1791, Secretary of War, January 1795, Secretary of State December 1795, United States Senator in 1803, and member of the United States House of Representatives in 1813. He said: “The opinion that a well-organized and well-disciplined militia is the natural defence of a free people is entitled to the character given to it by the Secretary, that of a maxim, but surely the experience of the people of the United States will not authorize the conclusion; because a well-disciplined militia comprehending the active mass of able-bodied men never had, and, I do not hesitate to say, never will have, an existence in our country.” “If,” added Pickering, “the worse than useless project of training the whole body of the militia be abandoned, some encouragement would be requisite to induce men to join select *volunteers*.”

General E. P. Gaines also took hold of the subject in 1826, and made a long report upon it; and in 1829 it was again fully reported upon in the House. A bill was offered, and some new points made in its support. It was boldly asserted that “the object of an organization of the militia of the United States should be to *make every individual thereof liable to enrolment,—a citizen-soldier, and to give to the whole the character and efficiency of an army.*” “To accomplish this great object,” it was asserted, “liberal disbursements must be made from the Treasury of the United States”; and the government was openly charged with “a disastrous and withering parsimony” toward the militia; and then, somewhat as now, the surplus in the United States Treasury was urged as a reason for a government appropriation for the militia. The committee said: “Already have propositions, novel and experimental in their character, to dispose of an anticipated burdensome surplus in the Treasury of the United States, been presented to Congress for consideration. If such anticipations are well founded, the claim of the militia of the United States to a liberal share of such surplus is irresistible,” and the committee offered a bill. But notwithstanding all these efforts, including the last one mentioned, to deplete a plethoric treasury, the general government could not be led into legislating for the militia of the States further than making the usual appropriation for arms.

States also, and their militia officers, petitioned Congress from time to time without effect. It is not necessary to refer specially to the efforts of later times. It seems to be a crystallized conviction, and I think a sound one, that it is neither constitutional nor practicable for the general government to make a reliable military force of the militia; and that the general government ought not to make appropriations directly for militia purposes, otherwise than providing arms.

The second article of Amendments to the Constitution says: “A well-regulated

militia being necessary to the security of a free State, the right of the people to keep and bear arms shall not be infringed." The right secured to our people by this article is a precious one; and eminent jurists, statesmen, and soldiers have reaffirmed the assumption or maxim upon which it is predicated, to wit: that a well-regulated militia is necessary to the security of a free State; but, as Pickering said in 1810, there is nothing in our experience to confirm it. No one will maintain that we have ever had a well-regulated militia, or any thing approaching it, and we are farther from it to-day than we ever were. Yet we have had both foreign and domestic wars and we are still free.

In a letter to Congress Washington said: "If called upon to declare upon oath whether the militia have been most serviceable or hurtful on the whole, I should subscribe to the latter"; and Pickering said it had "never done any good to the country except in the single affair of Bunker Hill."

The bad behavior of the militia in the War of 1812—including its refusal to cross the Canada frontier—is a matter of history.

The conclusion is, that instead of depending upon a well-regulated militia, our liberties depend, primarily, upon the character, spirit, and intelligence of our people, and secondarily, upon a wise exercise of the constitutional power of Congress to raise and support armies.

In the letter from Washington already cited he says: "The jealousy of a standing army and the evils to be apprehended from one are remote, and, in my judgment, situated and circumstanced as we are, not at all to be dreaded."

But, Mr. President, the real proposition before us is not to improve and enforce the so-called "well-regulated militia" system of the Constitution, but to abandon it.

As I have shown, I do not expect the general government to derive much benefit from that system, but I dissent from the grounds upon which it is proposed to abandon it. The proposition is that the general government shall appropriate money directly for the aid or encouragement of certain volunteer military organizations, of which the so-called National Guard of the State of New York is a good, if not the best, example. This force is in fact a State army, though as it marches under the militia flag I do not assert that it is in violation of the Constitution, which says: "No State shall, without the consent of Congress \* \* \* keep troops or ships of war in time of peace." Certainly the National Guard of New York is an excellent military force. I look with respect and admiration upon the devotion of its members to the unselfish and noble task of preparing themselves for affording military protection to the very fellow-citizens who are their competitors in civil life, and who profit by the time these National Guardsmen take from their regular pursuits, and for the general welfare devote to improvement in the profession of arms. I repeat, I respect and admire the purposes and zeal of these citizen-soldiers. But we are considering the public question, whether upon the facts in the case, the general government ought to appropriate money for their assistance, under its constitutional power to provide for organizing and disciplining the militia. I think not. Certainly not, if a well-regulated militia such as our forefathers meant, and our Constitution and laws contemplate, is necessary to our security; for this National Guard is a *substitute* for the militia,—an evasion of the militia laws, or rather the State's apology for not enforcing the militia laws upon *all* able-bodied male citizens between eighteen and forty-five years of age. If the general government should recognize and aid this special State force it would to the extent of that recognition and aid oppose the enforcement of the militia system, and substitute for it a system of standing armies for the States; and it would be building up these State standing armies under cover of the very militia system which their existence would destroy. The militia is in service by law; it is a compulsory force. These National Guardsmen enlist voluntarily,

but they receive all there is in the militia laws of the United States, and of the State, to further their military purposes. They are enlisted, organized, uniformed, equipped, drilled, instructed, and disciplined as soldiers. "Nothing," said Mr. Harrison, in his report to the U. S. House of Representatives in 1816, "can be more dangerous in such a government than to have a knowledge of the military art confined to a part of the people; for sooner or later that part will govern." I do not share Mr. Harrison's apprehensions, but this National Guard is the "part of the people" to which all or nearly all knowledge of the military art under control of the various States is confined; and to this restriction of military knowledge it is proposed the general government shall give direct aid and encouragement by an appropriation of money. It is not to be supposed that the liberties of the people of this country will ever be in jeopardy from either the Army of the United States, or from these armies of the respective States; but it may be asserted with safety that the danger is no more remote from one of these forces than from the other; and of the two, the general government had better devote its money to the development and support of the former. Without dwelling longer upon this point, I may say it seems to me there are weighty objections to the general government appropriating money directly for these special State forces, as well as to appropriations for the militia of the laws. It is beyond dispute that such State armies as the National Guard of New York are valuable military bodies, whose services may be needed at any moment. Promoting their military efficiency, however, is a matter that rests with the States who create and control these substitutes for the militia, not with the general government. As U. S. Senator Smith reported in 1810: "If the States are anxious for an effective militia, to them belongs the power, and to them belong the means of rendering the militia truly our bulwark in war and our safeguard in peace."

But notwithstanding the duty of the States, it cannot be denied that our military defence rests largely and directly upon the general government; and if that government is not to create, maintain, or encourage "the militia," or its substitute the National Guard, by direct appropriations, through what channels shall it proceed to meet the responsibility it is under? The answer seems to be, through its constitutional powers to provide and maintain a navy, and to raise and support armies, and make rules for their government and regulation. This includes the power to enlist and to draft the men, appoint the officers, and to organize, discipline, educate, feed, clothe, equip, transport, and pay the forces. The right of the general government to promote military education through the exercise of its power to raise and support armies, is limited only by the will of the people as expressed through Congress. That, no doubt, was the view taken by the committee which reported to the U. S. House of Representatives in 1817, that we ought "to devise a system of military instruction which shall be engrafted on and form part of the ordinary education of our youth," and under which officers of the Army are now detailed for service at a number of the schools and colleges of the country. I have no doubt that more can be done in that way for the military interests of the country, than can be accomplished by any effort of the general government to force or coax grown men to submit to militia training.

In addition to these schools for youth, much can be accomplished through the military schools established and maintained under the power to raise and support armies. The Military Academy at West Point, the Engineer School at Willett's Point, the Artillery School at Fort Monroe, the Infantry School at Fort Leavenworth, the Cavalry School which the Lieutenant-General Commanding the Army proposes for Fort Riley, and this Military Service Institution, (composed of some nine hundred officers and ex-officers of the Regular Army) laboring to preserve the true military spirit and to disseminate military information, can all be developed and enlarged to any extent that Congress may deem necessary in providing military instruction for the security of the

country. Furthermore, military geographical departments, and military stations, especially the permanent Posts occupied by the artillery near our seaboard cities, can—under the power to raise and support armies—be made practical fields and schools for all the volunteer forces that care to gather together in and around them for military exercises and instruction. In all these cases the general government would have full control and responsibility. And finally, as the essential basis of its military system, the general government should—as it has always shown itself willing to do—support a standing Army large enough to give full development to the various arms of service, to keep pace with the progress of the military profession throughout the world, especially in matters pertaining to the staff, and the manufacture of and improvements in weapons and projectiles of war.

I venture the assertion that no thinking citizen of the republic, when he recalls the behavior of our Regular Army since the formation of the government, and particularly at the close of the rebellion and during the period of reconstruction, really feels afraid that the liberties of the people will ever be endangered by it. If we ever lose our freedom it will be from the corruption of the people, from loss of manliness, from adopting the creed that "the wealth of nations, consists not in national virtues and primitive simplicity, but in silk and cotton and something they call capital"; and not from the Regular Army. The truth is, the opposition to our Regular Army is in reality based on economy, or parsimony if you please. No one who studies the subject can fail to see, that just in the proportion that a body politic becomes devoted to peaceable pursuits, is the necessity developed for setting apart a portion of the community for special military training and service.

In case of war, I regard it as inevitable that, instead of depending upon the militia, the general government, under its power to raise and support armies, will call volunteers into its own service, and if necessary, enroll and draft the "national forces" as it did by the so-called Enrolment Act of March 3, 1863. In New York that act was held to be unconstitutional upon the ground that it attempted to create a *national* militia; but, on the other hand, in Pennsylvania it was held to be constitutional; and it is now recognized as a constitutional exercise of the power to raise and support armies. If the national forces are called for directly by the general government they are quite sure to come; whereas, calls for State militia may be refused as they were in 1812 and in 1861. Upon the latter occasion some Governors not only refused but defied the National Executive; upon the former, the Governors of Massachusetts, Connecticut, and Rhode Island refused to furnish the militia called for by the President under the Act of April 10, 1812, and the Governor of the first named State took the broad ground that "the commanders-in-chief of the militia of the several States have a right to determine whether any of the exigencies contemplated by the Constitution of the United States exist, so as to require them to place the militia, or any part of it, in the service of the United States, at the request of the President, to be commanded by him, pursuant to acts of Congress." In this view, the Governor was sustained by his council, and by Justices Parsons, Sewell, and Parker of the Supreme Court of the State. These Justices said: "As this power is not delegated to the United States by the Federal Constitution, nor prohibited by it to the States, it is reserved to the States respectively; and from the nature of the power, it must be exercised by those with whom respectively is entrusted the chief command of the militia." This doctrine was disputed by Secretary of War James Monroe, in 1815; and in the case of *Martin v. Mott*, the U. S. Supreme Court squarely overruled it, saying: "We are all of opinion that the authority to decide whether the exigency has arisen belongs exclusively to the President; and that his decision is conclusive upon all other persons." But notwithstanding the clearness and soundness of the Supreme Court's decision upon

the principle, the *power* to decide whether the militia *as such* shall be called out and put under the President, rests *practically* with the Governors. If they, dissenting from the President's views as to the exigency, refuse his call, there is no process provided by which he can secure the services of the militia with any certainty, even though he appeal directly to militia officers subordinate to the Governor. Hence the necessity under the power to raise and support armies for accepting United States volunteers, and for enrolling and drafting the "national forces."

I am not unmindful of the fact that the elements which make up the "national forces" are essentially the same as those which constitute the militia of the States; and that whether these elements are to respond to our necessities as national forces, or State militia, it is equally to the interest of the country that they receive beforehand all the military instruction practicable. The point I desire to make here is, that taking all things into consideration, the least dispute as to constitutional power and public expediency will arise, and the best results will be attained, if the general government directs its efforts to secure that instruction through its ample power to raise and support armies, and not through its nominal power to provide for organizing and disciplining the militia of the States, leaving the States to work upon their citizens as militia.

GEN. G. W. WINGATE—*Mr. Chairman*: I do not agree in the least with General Fry in the distinction which he seeks to draw between the "militia of the Constitution" and the uniformed militia or National Guard now existing in the different States, by which and for which the bill referred to by General Sherman was prepared, and of which troops General Fry speaks so highly. In fact, I do not exactly understand what is meant by the "Militia of the Constitution."

Undoubtedly under the Constitution Congress has power to provide for organizing the militia. But this it has only done in the act of 1792, referred to by General Sherman, which is in such very general terms as practically to constitute no organization at all. Consequently, as in the case of bankruptcy and similar subjects, the principle applies that until Congress exercises its exclusive powers, the States retain the right to do as they please in the way of creating and disciplining such militia as they see fit to establish; provided, only, that they do nothing contrary to what Congress has enacted. Under this authority most of the States have organized and uniformed certain military bodies which they called their National or State Guard. The method of organization pursued has been different in different States. In many the entire male population is treated as constituting the militia, and is divided into the "uniformed militia," and the uniformed (or active) National or State Guard. Formerly some of the States required the uniformed militia to make certain parades (which they never did), or pay a fine, which constituted their military fund. While this custom has fallen into disuse, still, in some States the distinction is still kept up, and these fines practically amount to a poll-tax upon the entire population, which is used for the support of the actual uniformed National Guard. In most of the States, however, this has been dropped, and the expenses of the active militia are paid out of the public treasury from funds collected by taxation in the ordinary way. In some of the States also provision exists by which, in case of necessity, the ranks of the uniformed National Guard may be filled by draft from the uniformed. A provision for this is contained in the Military Code of the State of New York. The force thus organized in these several States is denominated and treated by them as being their State militia. As such it is legislated about, and many decisions of the different courts have been given distinctly recognizing it as the "constitutional militia" force, and, as such, its right to hold court-martials and enforce their decrees, which otherwise would be unconstitutional, has been sustained. What is, let me ask, "the militia of the Constitution," except such forces as are raised

by the different States, and of which their Governors are the Commanders-in-Chief? and who is to decide what those forces are, except the States themselves? When, therefore, these States organize and uniform a force conceded by General Fry and others to be efficient, and call it their State militia or National Guard, how can there be any doubt but that it is such militia, and therefore the militia of the Constitution? It was as such militia that the National Guard of the various States was called upon for service by the President at various times during the war of the Rebellion. As such it responded to those calls year after year, and as such it is conceded to have done valuable service.

A number of officers of the National Guard who have been anxious to increase its efficiency, feeling keenly the absurdities of the present militia law of the United States, so forcibly stated by General Sherman, have been working for several years past in endeavoring to induce Congress to amend it so as to make it something suitable for the present day. This has been a most laborious and unsatisfactory task. Met on the one side by indifference in those States where liberal State aid was extended to the existing militia, and on the other by opposition in the States which were defenceless on account of the failure by their Legislature to make any appropriation whatever for their militia, and who consequently have none; attacked on the one hand by those who insist that the plan concealed a great scheme "to turn over the militia forces of the different States to the Regular Army, and thus build up a force of 250,000 men"; and on the other by various military theorists who want the French, Prussian, or Austrian system, or most commonly some little system of their own, substituted for the desired legislation, and who object to any scheme but their own idea, we have indeed had a thorny path. We have proceeded in this matter with great care, desiring simply to do the best we could under the circumstances. From time to time we have dropped out numerous provisions in the proposed bill which we found met with criticism, and have also inserted others which seemed to be popular, and have done our best to combine the wisdom of the serpent with the mildness of the dove. Any one who knows any thing of Congress, knows that you must take what you can get, not what you would like to have. We have seen that the only prospect of obtaining any relief was by modelling measures in such form as to remove all possible opposition, and we have tried to do so.

Among the projects thus abandoned was the idea of permitting regular officers to be detailed, with their own consent, to act as Adjutants and Chiefs of Staff of National Guard regiments, brigades, and divisions, upon the request of their commanding officers. This system works well among the British Volunteers, and I, for one, thought it would do so here, relieving commanding officers from much labor, and placing at their elbow an officer familiar with those customs of the service which cannot be learned from books, and that it would also prove advantageous to the regular officers detailed. To my surprise it proved quite unpopular. The Army turned a cold shoulder upon it, and the National Guard regarded it with suspicion. So we struck it out. The same fate met a special hobby of my own contained in the original bill, the section providing for governmental transportation and prizes for team-shooting at Creedmoor. It excited criticism and local jealousy, and had to be abandoned.

On the other hand we have inserted a provision providing for the use of the forts for heavy artillery practice by the National Guard, which seems to meet with approval.

At the present time it seems that the bill meets with but little opposition as to its details, the main one, of course, being the insufficiency of the appropriation, but that is as large as Congress can just now be induced to agree to.

I desire upon behalf of the National Guard to express to General Sherman our great obligations for his able presentation of the defects of existing law, and the necessity of



the changes we are urging. Undoubtedly it will have a great effect and help to develop and consolidate that growing sentiment in favor of the amendment of the present statute which we have been endeavoring to build up. I am glad to say that we think that our labor has not been in vain. The public press of the country has been attracted toward the subject, numbers of articles have been published, and the public mind has been generally attracted to the defects of the system. More than all, our legislators have been induced to look into the bill, and find that the foundations of the government are not intended to be attacked, that there is nothing unconstitutional in the measures proposed, and, what is more, begin to see that it is supported by a strong public sentiment. Under these circumstances we feel assured that if the matter can once be brought to the attention of Congress so that a vote can be had upon it, success is pretty certain.

GEN. RODENBOUGH.—As a member of an Institution which exists only to "promote the military interests of the United States," I feel gratified that General Sherman has taken this opportunity to recommend a more liberal national provision (in the words of the Constitution) "for organizing, arming, and disciplining the militia."

It is claimed by some that the general government can accomplish no appreciable good under the authority quoted: the facts do not seem to justify this conclusion.

The plan of our compact Regular Army has been copied by most militia organizations; the annual appropriation for arms has been for seventy-six years eagerly accepted by all of the States; and the Army regulations and tactics are now generally adopted for purposes of discipline by all State forces.

The question of federal *control* seems to be out of place in considering the practicability of federal *aid*, which I understand is advocated by General Sherman.

Every citizen may claim such aid as his general government can, under the constitutional provision just quoted, give him, as a member of the militia, for preparation before he is called "forth to execute the laws of the Union."

Congress has always executed its power in this respect with wisdom and moderation, and doubtless may be depended upon to continue the same policy; this policy is not inconsistent with an increase of the appropriation already authorized, nor with lending to the militia, any person or thing connected with the military establishment that may be desired for militia improvement. A call for troops, under the right "to raise and support armies," will furnish raw material only,—such as Washington, Huntingdon, and Pickering declared "hurtful on the whole," or "food for powder in the day of battle"; and this will apply whether they be called "militia" or "volunteers." For such a call is never made until the eleventh hour, when there is but scant time to train the masses who may "rally round the flag."

General Sherman reminds us that men must acquire military *habits* before they can become reliable military defenders. Militia may acquire *some* of these habits.

The extent of federal aid practicable is to help those States having only a *nominal* militia to reach the actual military status of the stronger States, and to furnish the last-named class with such things required by them to complete their "organization, armament, or discipline."

If this is desirable on military grounds, it is doubly so for humane reasons, and to reduce the casualties of war to a minimum. It is asserted that the relative mortality of poorly and well-trained masses of men in campaign is largely in favor of the last mentioned. The loss of life during the War of the Rebellion on the Union side, and that of the Germans in 1870-71, under different conditions of preparation for service, and notwithstanding the improvement in death-dealing weapons since 1865, was as follows: *Killed, or died of wounds*, U. S., 4.3 per cent.; German, 2.50 per cent.: *died from disease*, U. S., 8.3 per cent.; German, 1.05 per cent.; at Shiloh (where the forces



on both sides were *largely* raw recruits) the percentage of killed and wounded was 20 per cent. of the forces engaged ; at Gettysburg, where the troops represented the best results of *field* preparation, the loss was 26 per cent. The percentage of killed and wounded in the bloodiest Franco-German battle, Mars-la-Tour, was only 14 ; in three other leading engagements : Worth, 12 ; Gravelotte, 9 ; Spicheren, 9 ; Sedan, 8. These figures<sup>1</sup> are suggestive if not conclusive. If a large part of the Union force had enjoyed the benefit of camps of instruction, like those recently established at Peekskill, Framingham, Gettysburg, and Niantic, can one doubt that the loss by disease, incident to ignorance of camp life, in 1861-'62 would have been materially reduced ?

General military training in time of peace tends to shorten the period of war which may ensue. Where complete National provision to this end does not exist or appears inexpedient, the support by the general government of reasonable State methods, not in conflict with the Federal Constitution and law should be freely extended and accepted.

For the instruction of officers the government institutions referred to by Gen. Fry might to a certain extent be utilized, but for the full benefit of the right of the citizen "to bear arms" under State as well as National laws, the schools of the New York Seventh or Twenty-second militia regiments, and others of that grade, are necessary.

It is not likely that these troops, recognized in the most practical way for three quarters of a century as the militia under the Constitution, will ever be unmindful of their national obligations, when properly called upon, or that serious objection will be made to an increase of the federal *aid* they are already enjoying, *provided* it is not hampered by too much federal *control*. Undoubtedly, a wide discussion of this question should be encouraged, especially among representatives of the various State forces.

<sup>1</sup> Greene's "Improvements in the Art of War," JOURNAL OF THE MILITARY SERVICE INSTITUTION, vol iv., p. 46.

## OUR INVISIBLE FOES.\*

BY MAJOR GEORGE M. STERNBERG,

SURGEON U. S. ARMY.

THE pages of history abound in examples of well-equipped armies, led by able generals, which have suffered defeat, not from the assaults of armed troops opposed to them in the field, but from those of invisible foes, of which until quite recently we have had no exact knowledge, but which there is good reason to believe are directly or indirectly the cause of the pestilential diseases which not infrequently devastate armies, and also of those endemic diseases due to insanitary local conditions, which are responsible for so large a share of the sickness and mortality among troops in the field.

The invisible foes referred to are known in a general way as "disease germs," and the object of the present paper is to give a brief account of what is known in regard to the nature, form, and *modus operandi* of these microscopic enemies of the human race, together with some information, based upon experimental data, relating to the best means of destroying them.

This is evidently a subject of great importance from a military point of view, aside from the personal and humanitarian interest which military men cannot fail to take in it, in common with other educated persons. For the conduct of a campaign upon scientific principles requires a careful consideration of all conditions which are liable to reduce the effective strength or physical vigor of the troops engaged in it.

In aggressive warfare an advancing army is constantly weakened by the detachment of garrisons to hold important points captured, and by the increasing number of men required to keep up communication with the base of supplies. But in addition to

\* Read before the MILITARY SERVICE INSTITUTION, January 8, 1885, Gen. FRY presiding.

this it often happens that endemic causes of disease exist in the invaded territory, which make greater drafts upon the strength of an army than the bullets of the enemy or the detachment of troops for the purpose mentioned. Unless this possibility is considered in advance and the topography of the country regarded from a sanitary as well as from a military point of view, the best-planned campaign is liable to prove a disastrous failure.

We no longer ascribe failure from such causes to the "angry interference of the gods of war," as did the ancient Greeks, nor can we, in all cases, exonerate the defeated general, and ascribe his disaster to the "unavoidable chances of war." The tendency of science in military affairs, as well as in the peaceful arts, is to eliminate chance and to hold some one responsible for *accidents*. Thus no one would hesitate, to-day, to assert that some one was criminally responsible if an army should be decimated by small-pox. Now and then a case of this disease occurs in garrisons located in the vicinity of populous cities, but a series of cases in the same garrison would be a cause for official inquiry, and could hardly occur except as a result of negligence on the part of the medical officer to carry out well-known measures for preventing its extension. It is scarcely necessary to remind you that prior to the discovery of the immortal Jenner this disease not infrequently interfered in a serious manner with important military operations.

Unfortunately we have as yet no vaccination against cholera, yellow fever, and typhoid fever, but sanitary science is in a position to point out measures for restricting the epidemic extension of these diseases, which, if not as easy of application, would probably be equally efficient if it were always practicable to enforce them. These measures are founded upon the demonstrated fact that the *materies morbi* of these diseases may be transported from infected places to distant localities, and there establish new centres of infection if local conditions are favorable for the increase of the infectious agent, which we have long been in the habit of referring to as the "germ" of the disease. That we have, in truth, to deal with a living germ in these diseases seems almost certain from the fact that the infectious agent is unquestionably capable of increase external to the human body, and that the conditions which favor this increase are exactly those which are most favorable for the growth of the low organisms known as *bacteria*, to which class all known disease germs belong.

These conditions consist in the presence of decomposing organic matter, or filth, which experience proves is essential for the external development of these germs, and of a sufficiently elevated temperature, together with the presence of a certain amount of moisture. I shall not here insist upon the evidence which is furnished by the microscope, for I must admit that, as regards the three diseases mentioned, there has as yet been no exact demonstration, which can withstand rigid scientific criticism, of the specific germs which we suppose to be the cause of each. The most that we can say is that it appears very probable that the comma-bacillus, discovered by Koch, is the veritable germ of cholera, and that there is some evidence in favor of the view that the bacillus of Eberth is the cause of typhoid fever, whereas the claim of Domingos Freiré of Brazil, to have discovered the germ of yellow fever, appears to be entirely without foundation.

Admitting that in these and in other diseases of the same class—which as a group have received from sanitarians the name of “filth-diseases”—there is a living germ capable of self-multiplication in a suitable nidus, and of being transported to distant localities without losing its vital activity and consequent infecting power, it is evident that three prominent indications present themselves to govern us in our preventive measures, viz.:

(a) Prevent the introduction of exotic germs, such as those of cholera and yellow fever,—*quarantine*.

(b) Endeavor to destroy the germs of infectious diseases, in all material which is known to contain them—*e. g.*, the discharges of typhoid or of cholera patients, the sputa of those suffering from diphtheria or from consumption,—*disinfection*.

(c) Dispose of all material which might serve as pabulum for the external development of these germs, in such a way as to make it unavailable for their use,—*general sanitation*.

The limits of the present paper will permit me to dwell alone, and that briefly, upon the measures which come under the second of the above headings. But first I shall endeavor to give, in a few words as possible, some general information relating to the class of microscopic plants which includes “our invisible foes” so far as they are known to science.

The bacteria are unicellular plants, which, both on account of their minute size and simplicity of structure, must be placed at the very foot of the scale of living organisms. In form they are spherical, rod-shaped, or spiral filaments, and some species are

endowed with active movements. Although all the species are microscopic they differ greatly in size, and the smallest micrococcus bears about the same relation to the largest spirillum that a mouse does to an elephant. A micrococcus magnified one thousand diameters is still much smaller than the head of the smallest pin, and a drop of fluid the size of a pin's head would contain several millions of these microscopic plants. Yet each individual coccus consists of a little mass of living protoplasm, enclosed in a thin envelope of the non-living material known as cellulose. But this is not the strangest part of the story. The living matter of the different species of bacteria possesses different vital properties, and each has the power of selecting that kind of aliment which is best suited to promote its growth and reproductive activity. Moreover, the physiological processes going on in these little cell-laboratories give rise to the most diversified excretory products, some of which are potent poisons, which give pathogenic power to the species producing them.

The spherical bacteria, or micrococci, are not only the smallest of all, but they are the simplest as regards their mode of reproduction. This occurs only by the process known as spontaneous fission, or simple binary division; whereas the rod-shaped bacteria, or bacilli, also form reproductive bodies, called spores.

These spores correspond with the seeds of higher plants, and are far more difficult to destroy than are the growing plants in the interior of which they are developed. For this reason degrees of temperature or chemical reagents which quickly destroy micrococci are entirely inadequate for the destruction of spore-containing bacilli. These reproductive spores resemble the micrococci in size and form, but may be distinguished from them by their different refractive power, different behavior with staining reagents, and, especially, by the test of cultivation. When introduced into a sterilized culture fluid, spores develop into rods like those in the interior of which they were previously formed; while the micrococci by simple binary division form pairs of spherical elements, or groups of four when division occurs in two directions, or long chaplets when division is in one direction only and the cocci remain attached to each other.

There are innumerable species of bacteria which are distinguished one from another, not only by differences in form, but by their different physiological characters. Indeed we may have distinct species, as shown by a permanent difference in color, or in

physiological characters, but in which no distinctive morphological differences can be detected by the highest powers of the microscope. Thus some of the micrococci which are believed to be the cause of certain infectious diseases are apparently identical in form, size, and mode of grouping with others which are known to be harmless.

The bacteria as a class are not to be considered the "invisible foes" of mankind. On the contrary, there are numerous harmless species, some of which constantly infest the human mouth and intestine, where it is very possible that some of them serve a useful purpose. As a class these microscopic plants occupy an important, and I may say an indispensable, place in the economy of nature. For it is their function to pull to pieces—decompose—the complex organic substances which constitute the tissues of higher plants and animals. It is evident that if there were no provision in nature for this decomposition of organic material the surface of the earth would soon become encumbered with it, and the elementary substances in the soil and atmosphere, out of which growing plants and animals build up their tissues, would after a time be exhausted, and as a consequence the further development of living things would be impossible. So long as this power to decompose organic material is limited to that which has already served its purpose in the economy of living organisms, the function of these agents of decomposition is conservative. But when a particular species has the power of overcoming the vital resistance of living tissues and of living as a parasite at their expense, or of multiplying in the blood of a living animal, it is evidently an enemy capable of destroying the life of the invaded individual. Such parasitic bacteria are popularly known as "disease germs."

The investigations of the famous French chemist, Pasteur, and of the equally famous German physician, Koch, together with those of numerous *savants* of less renown, have demonstrated the fact that certain infectious diseases of man and of the lower animals are caused by disease germs of this kind; and it seems not improbable, from the evidence now before us, that the generalization may eventually be made that all infectious diseases are parasitic diseases. This generalization is not justified, however, by the present state of knowledge, and it must be admitted that satisfactory experimental evidence of its truth is still wanting in a majority of the infectious diseases which are most fatal to the

human race—*e. g.*, small-pox, scarlet-fever, yellow fever, typhoid fever.

Cholera and diphtheria might properly be included in the list of diseases in which the etiological relation of micro-organisms found in infectious material has not been definitely determined, but in these diseases the evidence, while not entirely convincing, is of such a nature that I can scarcely doubt the causal relation of the comma-bacillus—or spirillum—of Koch to the one and of the *micrococcus diphtheriticus* of Oertel to the other. But if we put aside all doubtful cases there is still left a considerable list of infectious diseases in which the causal relation of micro-organisms has been definitely established. This is not the proper place to review the evidence which justifies me in making this statement, nor is it worth while to give you a list of the diseases in question, as the greater number are confined to certain species of the lower animals, and several are known to us only by laboratory experiments—*e. g.*, the fatal form of septicæmia in rabbits produced by the injection of human saliva, which I have especially studied, and have shown to be due to a micrococcus. But one acute febrile disease peculiar to man has been proved to be due to the presence of parasitic bacteria in the blood. This is the disease known as relapsing fever, in which Obermeier, a German physician, discovered, in 1868, a micro-organism of spiral form and exhibiting active movements. This has been shown, by numerous subsequent observations, to be constantly present in the blood of patients suffering from the disease in question during the acme of the fever; and the disease has been reproduced in monkeys by inoculating them with blood containing this parasite.

In erysipelas Fehleisen has demonstrated that the skin of the affected part is invaded by micrococci, which he has been able to cultivate artificially, and has proved by inoculation experiments to be the cause of the erysipelatous rash and its attendant symptoms.

Another acute disease from which man occasionally suffers as a result of accidental inoculation, in which the germ multiplies in the blood of an infected individual, is known as anthrax. In this disease the parasite is rod-shaped, and, under certain circumstances, it forms endogenous spores, which may retain their vitality for an indefinite period, and, as I shall point out later, are not destroyed by the action of many chemical agents popularly supposed to be "disinfectants."



This disease, which is especially fatal to herbivorous animals, is the first in which the presence of parasitic micro-organisms was demonstrated, and has been the subject of innumerable experiments and of much controversy. But no one familiar with the evidence hesitates any longer in accepting this as convincing as to the essential causal relation of the *Bacillus anthracis* to the disease anthrax.

An interesting question, but one which I can refer to but briefly, relates to the manner in which these various disease germs produce the morbid phenomena which characterize the several diseases which have been shown to be due to their presence. Their pathogenic power doubtless depends partly upon the mechanical effects resulting from their presence in great numbers in the circulating fluid, which is manifested by the occlusion of the capillary blood-vessels and consequent interference with the functional activity of vital organs; partly upon the fact that they appropriate oxygen and organic material contained in the blood which is essential for the maintenance of normal physiological processes in the tissues; and partly, in certain cases at least, upon the production of special poisonous products as a result of their own vital processes.

While, as we have seen, some of the invisible foes with which we have to contend invade the blood or tissues, and as parasites feed upon the elaborated material which is required for the nourishment of the body, others confine their operations to the interior of the alimentary canal, where they produce abnormal fermentative changes in the contents of the stomach or bowels, which may give rise to more or less serious disturbance of the general health. In this case it is probably mainly by the formation of poisonous chemical products that they exercise their pathogenic power. There is little doubt that the intestinal fluxes generally, from the dread Asiatic pestilence to camp diarrhoea, are produced in this way by micro-organisms which for the most part find their way to the interior of the body in drinking-water. The injurious influence exercised upon the health of a community by invisible foes of this class is not confined entirely to those which invade the fortress—the human body,—but is also manifested under certain circumstances as a result of their external development in the hot-beds of filth which furnish the necessary pabulum for their rapid multiplication, and from which injurious volatile products of decomposition may be evolved as a result of the

action of the ordinary bacteria of putrefaction. It is possible that other more deadly disease poisons are produced in the same way by the action of specific micro-organisms upon organic matter external to the human body, and that in such diseases as yellow fever and the various forms of malarial fever this is the true explanation of the *modus operandi* of the germ. However this may be we have ample evidence that decomposing organic matter, and especially that of animal origin, furnishes a suitable nidus for the external multiplication of the germs of yellow fever, of cholera, and of typhoid.

This being the case we have to consider the question of disinfection. In other words, having acquired some knowledge of the nature and modes of attack of "our invisible foes," the next question is, how can we most successfully combat them? Many of the weapons which were formerly relied upon for this purpose have been proved by recent researches to be entirely inadequate, and some of the measures of disinfection still recommended, so far as any real value is concerned, may be classed with the charms and incantations of superstitious savages, or the solemn processions and religious ceremonies which in some countries are still relied upon to a great extent for arresting the progress of a pestilential malady. It is but a few years since, in the absence of precise knowledge on which to base a more rational practice, physicians frequently directed measures of disinfection quite as impotent as the incantations of the savage or the processions of priests. The flannel rag saturated with carbolic acid and hung up in the sick-room, or the chlorine saucer placed under the bed of each patient in a hospital ward, is entirely ineffectual as a disinfectant, and having the authority of the physician inspires a false confidence, and too often leads to the neglect of a far more important measure for ridding the air of a sick-room of floating disease germs, viz., by the admission of an abundance of fresh air. We know of no germicide agent which can be relied upon to disinfect the atmosphere of an occupied apartment; for it is amply demonstrated by laboratory experiments that known disease germs resist the agents which are most potent for their destruction in quantities which would render the atmosphere irrespirable. Sanitarians are therefore agreed that the disinfection of occupied apartments is impracticable, and that ventilation must be the main reliance for maintaining the purity of the atmosphere of the sick-room. \*

It is, nevertheless, in the sick-room that the most important measures of disinfection are to be enforced; for the infectious material which serves to propagate infectious diseases is for the most part given off from the bodies of patients suffering from these diseases. Thus in small-pox and scarlet-fever the infectious material is given off from the surface of the body; in diphtheria and tuberculosis it is contained in the sputa; in cholera and typhoid it is in the discharges from the bowels. How then shall we disinfect this material?

Evidently it is of the greatest importance that this question may be answered in a definite manner, for in the sick-room we have our invisible foes at an advantage, as we know where to find them, and their destruction upon the spot may prevent an immense amount of mischief in the future. In the case of the diseases last mentioned, at least, the seed contained in the alvine discharges of the sick is known to be capable of multiplication external to the body, and the sewers and vaults into which these discharges are commonly thrown furnish exactly the pabulum required for the development of cholera and typhoid-fever germs.

Fortunately science is to-day in a position to designate a few reliable agents for the destruction of disease germs, but before naming them I shall refer briefly to certain agents which have been and still are recommended as disinfectants, but which have been shown by exact experiments to be entirely unreliable as commonly used. This list includes the sulphate of iron, sulphate of zinc, chloride of zinc, carbolic acid, and a large number of proprietary "disinfectants" and "germicides"—so called—which are in the market, and which are faithfully used by a confiding public upon the recommendation of their respective venders, endorsed in some cases by chemists and physicians of repute, but who evidently are not familiar with the recent experimental evidence relating to their exact germicide value. Many of these agents are useful as antiseptics or as deodorizers, but when the object in view is the complete destruction of disease germs of the most refractory kind, they will not serve the purpose, and are worse than useless, inasmuch as a false confidence in their reputed power causes them to be used instead of more trustworthy agents.

I am at present engaged in extended experiments upon disinfectants, the detailed results of which will be published in due time. But the results thus far obtained are definite enough to enable me to give you a few hints of value.

For the disinfection of ships, hospitals, and dwellings no agent is likely to supplant sulphur dioxide (produced by burning sulphur), although laboratory experiments show that the power of this agent to destroy micro-organisms has been over-estimated, and that the presence of moisture is necessary to make it effective.

For the disinfection of clothing which can be washed, nothing better is known to science than the bichloride of mercury, or corrosive sublimate. As this is a very poisonous salt and gives no color or odor to a solution, it must be used with care and under proper supervision. But it does not injure textile fabrics, and does no harm to those who wear clothing which has been disinfected by it.

It should be used in the proportion of 1:1000, which is one gramme to the litre of water or about one drachm to the gallon. Clothing should be left in a solution of this strength for at least two hours.

For the disinfection of the sputa of patients suffering with diphtheria, tuberculosis, malignant scarlet-fever, etc., and for the discharges from the bowels of patients with cholera, typhoid fever, etc., the same salt may be safely recommended, but my experiments indicate that it will be best to use it in a solution twice as strong as that above mentioned.

In order to give a color to solutions for domestic use and thus to prevent their being mistaken by children and others for water, I would recommend that the permanganate of potassium in equal quantity be added to solutions intended for the above-mentioned purposes. This salt is a powerful deodorizer, and in solution with the potent germicide named gives us a cheap and efficient disinfectant for domestic use, or for hospitals. A cup half full of this should receive infectious sputum, and to disinfect alvine discharges a pint or more should be placed in the vessel before it is used.

Another agent which my recent experiments have shown to be of great value is Labarraque's solution, or *liquor sodae chlorinata*. This has long been known, but has unfortunately been largely replaced by inferior articles pushed into prominence by enterprising manufacturers. The solution varies greatly in strength, but when properly made and of full strength is a most valuable disinfectant for sputum and discharges from the bowels of patients sick with infectious diseases. It can be manufactured cheaply, and should be furnished by the gallon at a moderate cost, instead of in quart bottles at a fancy price. A pint would in ordinary cases be sufficient to disinfect one liquid stool.

## CAMP AND GARRISON SANITATION.\*

BY GENERAL EGBERT L. VIELE.

THE statistics of great wars show an enormous disproportion between the number of soldiers killed in battle and the number who die of disease.

The history of all wide-spread epidemics shows that the ratio of deaths among soldiers who come under their influence is much greater than among persons in civil life, and that one of the most effective agents in spreading contagion is the movement of troops from one section of country to another during the prevalence of a general epidemic.

These facts make the question of sanitation the most important element in the administration of military affairs.

As all soldiers are required to pass a rigid medical examination before admission into the Service, every man having a bodily infirmity or apparent tendency to disease being rejected, the natural inference would be that as a class they would be the last to succumb to epidemic influences, and that the vigorous health with which they enter the Service would be maintained under even extraordinary vicissitudes; yet experience has shown that epidemic diseases find a ready habitat both in camps and garrisons. It is true that the duties of a soldier are such as to lead to a heavier strain on his physical organization than would be imposed upon him in almost any other avocation of life. He is liable to be called upon to undergo for continuous periods of time a great amount of fatigue, to be deprived of regular intervals of sleep, and to submit at times to an irregular and often insufficient diet. On the other hand, the usual ration, when properly cooked, is wholesome and easy of digestion. Any bodily ailments are promptly and skilfully attended to, and his clothing is ample for his needs. Nevertheless, the circumstances

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surrounding his daily life require that a more thorough and comprehensive system of sanitation should be devised for him than for those in almost any other walk in life. In the first place, he is in no sense his own master; all his acts are governed by a will not his own; "His but to obey" under any and all circumstances.

" His not to answer why,  
His but to do or die."

Hence the very great responsibility that rests upon those appointed to command, a responsibility that extends far beyond a mere conformity to the rules and articles of war. Hence the necessity of a careful study of all the elements that may contribute to the well-being of the soldier, and a thorough knowledge of the influences that may prove to him a source of injury, physically or morally. This may seem to cover a very broad ground, yet the principles involved are neither many nor difficult to comprehend. Before entering upon a closer analysis of this subject, let us glance for a moment at some of the great facts of military history that bear directly upon it, a knowledge of which is essential to enable us to form a just estimate of its importance. Of the fifty independent powers recognized as nations having a separate existence as such, and organized under distinct forms of government, there are five that have been especially engaged in wars of great magnitude, have organized great armies, fought terrible battles, and which may be said to embrace at the present time *the armed potentiality of Modern Civilization*. These five are: Great Britain, France, Germany, Russia, and the United States of America. The permanent military force of the last, it is true, is comparatively insignificant, yet there is little doubt that in ninety days the United States could place as many armed men in the field as any one of the others, and that all five combined could muster in that brief period of time, if necessity demanded it, an armed force of 10,000,000 of men. This 10,000,000, therefore, may be said to represent the number of human beings directly interested in the subject before us.

Great Britain has had a terrible military experience, and furnishes in her history the most striking illustrations of a want of proper sanitation among her troops. The wars waged by that power have been, in a large measure, different from those conducted by other nations. They have been, as a rule, wars of aggression and conquest. Hence those contests have generally



lacked the great element of patriotism that has characterized the wars of most nations, and which illuminate instead of darken the pages of their history. The effect of this is seen in the appalling death-rate that marks the track of British troops. Mercenaries that are bought and paid for like cattle lack all noble and inspiring motives, and lack, as a consequence, moral courage and physical stamina, strikingly exhibited by the Hessians sent to America during the War of the Revolution. Twenty-nine thousand German soldiers were purchased for \$25,000,000 and shipped to this country. Of these nearly one half perished of disease, whilst comparatively few were actually killed in battle.

Since the beginning of this century 180,000 British soldiers have perished by disease alone in India, and as each soldier costs that government \$500 to land him in that country, the loss in money alone has been \$90,000,000. In the forty-one months of the Spanish War, 24,930 British soldiers died of disease, while but 8,999 were killed or died of wounds. In the first seven months of the Crimean War the mortality among the English troops was sixty per cent. per annum from disease alone, a rate of mortality exceeding that of the great plague in London, and a higher ratio than that of the mortality in cholera to the attacks,—that is to say, there died out of the army in the Crimea an annual rate greater than ordinarily die in time of pestilence out of the sick. Of the 533,000 soldiers that formed the French invasion of Russia, only 45,000 returned in regular bodies. The army lost 129,000 men, without a single encounter of any importance, six weeks after crossing the Niemen. When the Grand Army reached Moscow it had dwindled to 95,000 men; thus, before the beginning of the cold, losing two thirds of its number. In the campaign of 1828 against the Turks, the Russians appeared on the Pruth with 80,000 men, who were reinforced the next year by 40,000 more. When the main body reached Adrianople it scarcely numbered 15,000 capable of fighting. Of the 115,000 Russians who invaded European Turkey in 1828-29, scarcely more than 15,000 returned across the Pruth. Jomini calculates that the Russian army, in these two campaigns, lost 115,000 men, of whom 100,000 died of disease alone.

In the war between the United States and Mexico, there were killed in battle or died of wounds, 120 officers and 1,429 soldiers; died of disease, 101 officers and 10,885 soldiers; to which, if we add 9,749 discharged for disability, it would make an

invalid loss of 20,634 out of the aggregate of 100,454 men engaged in the war. It is also true that there were but few survivors of that war who were not more or less affected with disease incident to the climate and the privations endured. During the Civil War the Union Army lost 304,369 men, of which 93,969 were killed in battle or died of wounds, leaving 210,400 who died of disease. From June, 1861, to June, 1866, a period of five years, out of a total average mean strength of 431,237 (the highest was 619,703, and the lowest 41,506) there were 5,825,480 cases of sickness treated, of which 393,773 were wounds or accidents, leaving 5,431,507 cases of disease alone. How many of these 210,400 deaths and these 5,431,507 cases of sickness were due to causes that are embraced under the head of preventable, it is the province of sanitary inquiry to determine. A marked illustration in this matter of preventable disease came under my own observation in the Mexican War. A division of troops with which I was connected was ordered to take post at Cuernavaca on the road from the City of Mexico to Acapulco, this being a part of a plan of permanent occupation of the country in the event of peace not being concluded. Attached to the division was a mounted command from the State of Georgia, composed chiefly of young men of good positions at home, who owned their own horses and equipments and were very much averse to the labors and duties incident to a permanent garrison. They were allowed, so far as their personal habits were concerned and their methods of living, to do pretty much as they pleased. They therefore adopted the "*dolce far niente*" methods of the natives, who existed principally on the spontaneous products of a remarkably genial climate, and taking no care of themselves, going without regular meals, eating voraciously the abundant native fruits, they soon began to sicken and die, both officers and men, until there were very few left, and those unfit for duty, not being able to muster an escort to bury their dead officers, a duty which I had to perform with my company. The remainder of the division enjoyed remarkably good health, and yet, from sheer personal neglect and ignorance, this particular command dwindled away. The only drill ground we had was absorbed by the graves of their men.

The Walcheren expedition furnishes a remarkable instance of similar neglect. This was undertaken by the British Government in 1809 for the capture of Antwerp, as a diversion in favor of

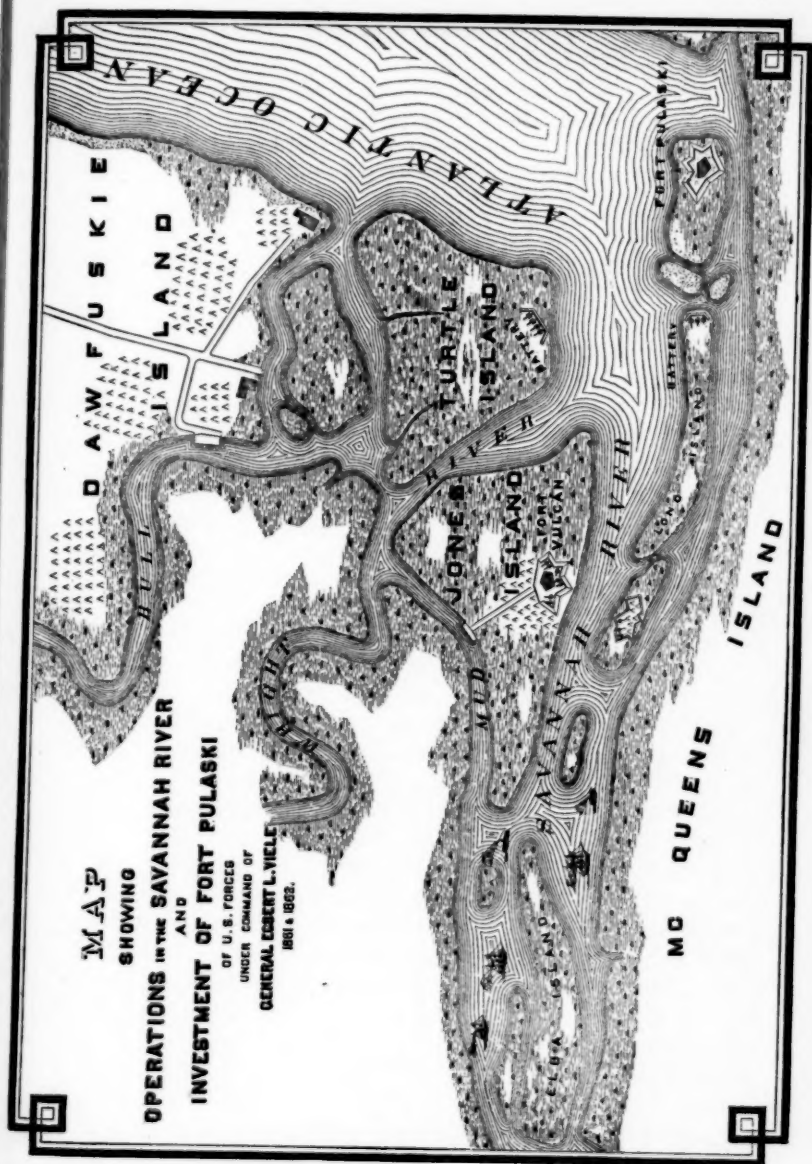


the allied armies arrayed against Napoleon on the Continent. It was one of the most formidable expeditions ever organized, and one of the most disastrous military failures in the history of modern warfare. There were no less than thirty-seven men-of-war (!), twenty-three frigates, and transports for 42,000 soldiers, making a total of 115 ships and gun-boats, manned by 30,000 sailors. The command had 160 pieces of heavy ordnance. The plan was to sail directly up the Scheldt (at the mouth of which they arrived in one day), and attack Antwerp, the fortifications of which were in a dilapidated condition and garrisoned by only 2,000 men, while there were not at the time in all Holland 10,000 troops to oppose them. At the mouth of the Scheldt lies the island of Walcheren, containing 50,000 acres, half of which is rich arable upland and half meadow, a portion being overflowed by high tides. The town of Flushing on this island was fortified, and the British commander, Lord Chatham, occupied a month in reducing this town. During this period his army, from improper exposure and want of care, was decimated by malarial fevers. In the meanwhile, Napoleon assembled 30,000 men for the defence of Antwerp, and the great expedition, that, in the words of Napier, "contained more than 40,000 of the finest of British soldiers,—a fleet of power to overthrow all the navies of the world combined, marine and land-forces together more than 80,000 fighting men," came to nought, returning to England with a loss of nearly 40,000 men, of which less than 300 were killed by the enemy. A more glaring instance of incapacity on the part of a commander was never known.

What different results may be achieved under very similar circumstances, although with a comparatively insignificant force, by a strict attention to sanitary rules, was shown during the military operations of the Civil War on the Southern coast.

In the year 1862 an expedition was organized from the forces then at Port Royal to occupy the bank of the Savannah River above Fort Pulaski, invest that fort and cut it off from its source of supplies. This also was a joint military and naval expedition, the land-forces consisting of about 4,000 men.

The mouth of the Savannah River, like the mouth of the Scheldt, forms a delta of alluvial islands, the greater portion of which are overflowed at very high tides. The design was for the vessels of the navy to make their way into the river through the bayous, and under cover of the naval guns, batteries were to be



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# MAP

SHOWING

OPERATIONS IN THE SAVANNAH RIVER

AND

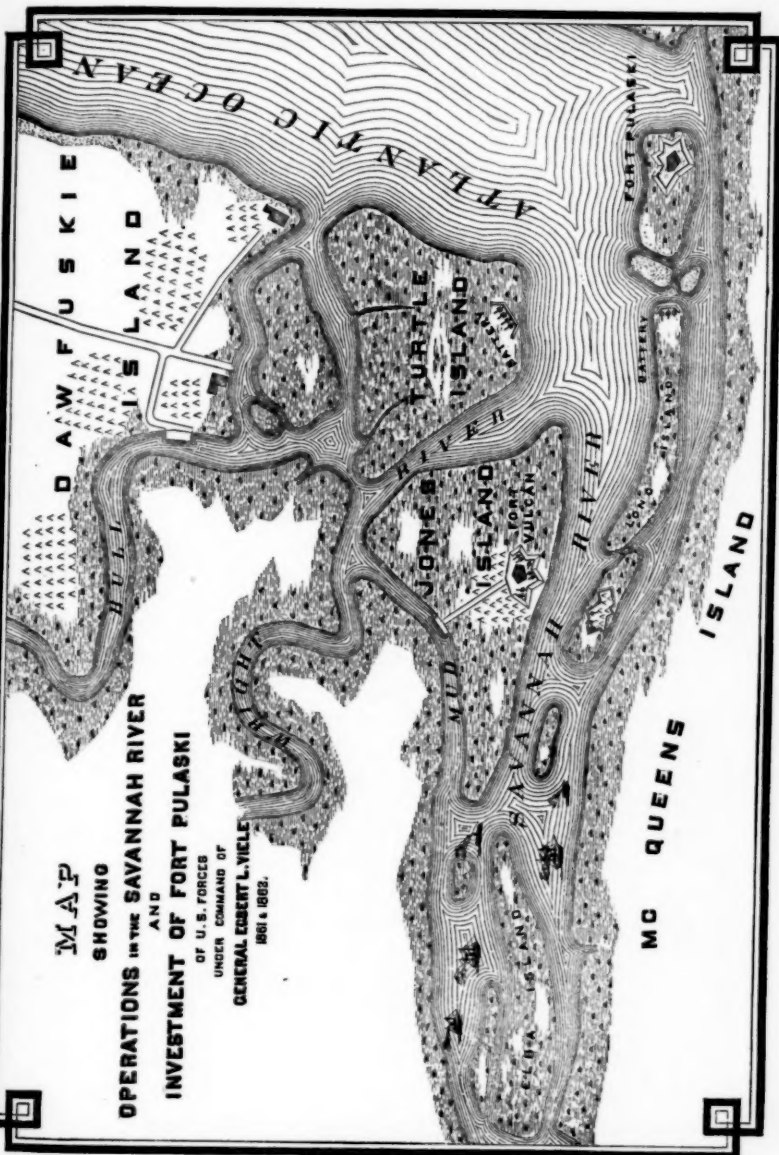
INVESTMENT OF FORT PULASKI

OF U. S. FORCES

UNDER COMMAND OF

GENERAL ROBERT L. YELLE

1861 & 1862.



erected by the land-forces on the islands that would prevent the passage of vessels from Savannah to the fort. It had been regarded as an axiom that white men could not live on the low and marshy lands bordering the rivers of the Southeastern coast, and it was with a feeling of great hesitation and anxiety that troops were ordered to erect batteries on the river and to live in the same on the low lands which at every spring-tide are flooded. Had not a military necessity demanded it, the experiment would never have been made. The people of that country had no idea that the men of the North were sufficiently fool-hardy to place their troops where disease would in a short time, in all probability, destroy at least half, if not more, of all sent there. The character of the islands on which the batteries were to be placed was such as would seem to preclude the idea of placing any thing like permanent works upon them. These islands are formed by deposits of thick and tenacious blue mud overgrown with reeds, and at high tides are flooded. They are surrounded by bayous, which are navigable by boats of light draught. The naval commander, Commodore (afterward Admiral) John Rodgers, found it impossible to get his vessels through these bayous, and so announced the failure of the expedition to the commander of the land-forces. The guns intended for the batteries had been placed each in a separate scow, and were to follow the naval vessels into the river. The withdrawal of the navy changed the plans, but did not alter the determination of the land forces. It was decided that the soldiers should do the work alone, or at least make the attempt by conveying the guns across the mud islands to the bank of the river, and build their batteries in the face of the enemy. A flotilla of gun-boats under Commodore Tatnall, an old and experienced naval commander, held complete possession of the river, and it was therefore absolutely necessary to do the work, if it was to be accomplished at all, under cover of the night. The artillery scows were towed by soldiers in row-boats through the bayous to a point on one of the islands as near to the river as it was safe to venture, and from this point, a distance of nearly a mile, the guns must be conveyed by some method or other to the border of the river, where they could be brought to bear on Tatnall's fleet. A landing-place was improvised by constructing a crib-work of cedar trees that were cut from the mainland. These were carried on the men's shoulders to the water, formed into rafts, and towed six miles to the place of

landing. This being accomplished, the guns were landed from the scows. Then the serious work began of crossing the island. Over this mile of distance and through the thick and tenacious mud the men, sinking to their knees at every step, dragged the heavy guns. To accomplish this, large pieces of timber were placed under the gun-wheels, and as soon as passed were brought to the front, thus furnishing a temporary tram-way. The hardship and fatigue of this midnight work can be better imagined than described. The night on which this difficult task was commenced was one of the most inclement of the season. A heavy storm was raging, the rain poured down in torrents, and the darkness was so intense as to render objects at a short distance imperceptible. The work was continued for several nights in succession, the guns being covered with the high-growing reeds at dawn to hide them from the patrolling gun-boats. Success at length crowned the labors of the men, and the guns were established on the banks of the river, followed by a four-hours' cannonading with the fleet, and a fortunate disabling of several of their enemy's vessels. Subsequently another battery was established on a shoal in the river, under cover of the first, and for two months and a half the men lived here an amphibious life, but under the strictest and most exacting sanitary regulations. The parties working in the mud, erecting the cover for the batteries, were changed at frequent intervals, rubbing themselves dry and changing their clothes or going to bed when coming off duty. They were furnished with the best supplies at the command of the Commissary Department, vegetables and fresh meat being issued to them more frequently than to the other troops. The medical officers were instructed to issue to them quinine and whiskey as a prophylactic. In short, every thing was done to maintain the men in the best physical condition, with the result that, at the end of two months and a half of extraordinary labor and privation, out of 4,000 men, most of them unused to even the most ordinary labor (one regiment, the 48th N. Y., was officered almost entirely by clergymen, with many clergymen and other professional men in the ranks), there were but ten deaths. Although the sanitary supervision was constant and unremitting, and the rules imperative, they did not exclude nor in any way interfere with the prescribed and regular rules of military discipline. The medical officers deserved great credit for the tact and assiduity with which they performed their very

arduous duties, and made a sanitary record of which they may feel justly proud.

Similar results to this followed the introduction into the British army in the Crimea of strict rules of sanitation, so that while in the beginning of that war the death-rate was absolutely appalling, during the last six months the mortality among the sick was not more than among the healthy Guards at home, and the general mortality among the troops was two thirds only of what it was among the troops at home.

#### EPIDEMICS.

What is particularly to be dreaded by a commander of troops, either in war or in peace, and what is to be guarded against with all the intelligence and the resources under his control, is the approach of an epidemic. Fortunately, of all the wide-spread and devastating epidemics that have at different periods of time been disseminated over the globe, there remain but two whose approach can now be looked forward to with any degree of probability, the recurrence of which has always been especially fatal to troops that have been brought under their influence. These are cholera and yellow-fever, both of tropical origin, the one having its foci in the East and the other in the West Indies.

Cholera, in all its visitations in every country, has been a terrible destroyer of soldiers, while troops have often been the unwilling and unfortunate agents in transmitting from place to place this fearful disease. The violence with which it attacks a body of troops brought in contact with it in the height of its infectious power is appalling. The men seem to become overwhelmed with a panic of fear and despondency, and succumb more readily to its effects from being utterly demoralized. On one occasion a division of British troops moving into an infected district in India was attacked with almost inconceivable fury by this disease, so that men in apparently good health dropped down by dozens and were dead or past recovery within an hour. Five hundred men were admitted into the hospital in one day, and in three days 2,500 were prostrated by the pestilence.

The cholera epidemic that reached America in 1832 was spread through the Northwest by the United States troops then marching to the Black Hawk War under General Scott. The cholera of 1848 was carried into Texas by the Eighth U. S. Infantry from New Orleans. That regiment suffered fearfully,

as did the other regiments stationed in Texas to which it was communicated. Among the victims was the distinguished General Worth, the Commander of the Department.

The cholera epidemic of 1865 was extensively diffused over the United States by recruits from Governor's Island, New York Harbor, and Newport Barracks, Kentucky, which were at that time the two general recruiting depots of the U. S. Army. Had this last epidemic come in the midst of the Civil War instead of at its close, the imagination cannot picture the horrors that would have resulted from its presence among the aggregate of four millions of soldiers engaged on both sides in that struggle.

My personal experience with the cholera is not without interest, nor without a lesson. In the winter of '48 and '49, being stationed on the Rio Grande frontier, I had constructed with my command a military road 125 miles long between Ringgold Barracks, opposite Camargo, to Laredo, and in February, '49, was ordered by General Worth to establish a military post at the latter place. Laredo is an old Spanish town built several hundred years ago. It was one of that remarkable series of Spanish missions established and maintained by the Propaganda in the seventeenth century under circumstances of wonderful heroism. The general plan of these missions was a combination of the ecclesiastical and military. The sites were laid out in rectangles having two plazas or public squares; on the main plaza the church was built; the other was the military plaza, where the troops were quartered. In establishing the post, as there was no government reservation, I took possession of the military plaza and there encamped my command. The sequel proved that it was the last place I should have selected. In less than a month the cholera broke out with great violence at Ringgold Barracks and a squadron of the Second Dragoons under Col. Hardee, that had been temporarily stationed there, left suddenly for San Antonio, by the way of Laredo, with the disease among the men. In the five-days' march the command was decimated and completely demoralized. A courier from Col. Hardee informed me of the condition of things, with the request that I should select a camp two or three miles from town and he would make a detour to reach it, hoping in that way to prevent the spread of the contagion among my men. I selected a bluff on the river and a grove of young mesquite trees for a camp for the dragoons. It proved a perfect sanitarium, as there was but one new case,

and that the surgeon, who succumbed to overwork, while all the sick recovered. On the other hand, my own command was nearly destroyed. The old military plaza, that was surrounded with the refuse of a hundred years, proved to be a perfect hot-bed for propagating the cholera germ, and for several days in succession the new guard buried the old guard in the clothes they had on. Many of them died in less than an hour after they were attacked. I had no surgeon, and I could only do for the men the best I knew. It was a terrible experience, that, with its lesson, I shall never forget; and from that time to this, preventive measures against disease have been a more or less constant study with me in the Service and in civil life.

Yellow-fever, although less rapid in its movements than cholera, comes in great waves travelling from south to north through a series of years with a greater or less amount of virulence as the atmospheric conditions may be favorable or unfavorable to its development. This disease is not disseminated like cholera by the movements of troops, unless conveyed in shipping, but is liable to break out in the quarters of soldiers where the climate and local conditions are favorable. Along the Gulf and Atlantic sea-board it has often proved disastrous to the garrisons. Yellow-fever, with its more violent stage, "black vomit," was very prevalent at Vera Cruz during the war with Mexico, but was never carried into the interior by the troops. Capt. Jenkins, of the 1st Dragoons, died of a very malignant attack of "black vomit," in the tent where I occupied the bed alongside of him, but I was not affected by it. He had acquired the poison at Vera Cruz, but the disease did not spread, because the camp was on a pure sandy beach where there was nothing to aid in propagating it.

I have dwelt upon the statistics and traditions of disease in war and during epidemics, in order to illustrate the potentiality of those terrible agents of mortality that are to be met by commensurate skill and vigilance; and we have seen that, without vigilance, skill is of little avail.

The present status of the world's great armies is about as follows, for the four great military powers:



	War Strength.	Peace Strength.
France . . . . .	1,738,400	502,697
Germany . . . . .	1,317,000	432,059
Russia. . . . .	1,800,000	793,537
Great Britain . . . . .	700,000	191,933
Total . . . . .	5,555,400	1,920,226

So that, in the absence of any great war in Europe, there are about 2,000,000 of soldiers in barracks. What kind of a life do they lead? Is it conducive to health and longevity? Or is it the reverse? And how does it compare with our own conditions? A critical examination into the barrack life of the British army, made a few years ago, showed that overcrowding, bad ventilation, bad drainage, and bad water was the rule and not the exception, and the same was found, in many instances, the case with the French army-barracks; so that, not only were epidemics of fever a frequent result, but pulmonary diseases, the direct result of bad ventilation, were rapidly developed. Some of the particular instances were almost incredible. According to one witness, the British soldier never knew a healthy home until he had committed some crime that placed him in a thoroughly ventilated cell of a military prison. Of course, this led to reforms; but reforms are seldom complete and by no means lasting. Compared with other great nations, the standing Army of the United States exhibits, numerically, but a sorry figure with a continent to protect and defend, and the shores of two vast oceans to guard; it seems ridiculous to enumerate its strength. The redeeming fact is that, whatever its deficiency in physical and numerical proportions, this is largely counterbalanced by its activity in mental expedients. It certainly does the largest business on the smallest capital of any military, or even civil, organization in the world. The military power of the United States may be said to consist of three elements: 1st, the Regular Army; 2d, the Militia; 3d, the Volunteer Force. The first is thoroughly organized and disciplined; the second is partially organized and partially disciplined; and the third, although neither organized nor disciplined, is available at call in immense numbers. In active service, all these are governed by the rules and regulations known as the Articles of War. The

Regular Army constitutes the rallying point for a rapid development of military organization in time of emergency.

But although there exists in this country the material for arming and placing in the field the largest army in the world, we have no military system whatever. The protection and defence of 50,000,000 of people scattered over an area of nearly 4,000,000 square miles, the preservation of our great industries, the safety of our commercial sea-ports, are left to blind chance. And yet no other nation in the world has the advantages that we possess for the organization and development of a powerful and comparatively inexpensive military system, reliable, effective, and prompt. This is due to the general intelligence of the people, and to their strong individuality, out of which spring a high order of patriotism, and a readiness to take up arms in the national defence. The tendency of educational institutions all over the country is to add a military code and discipline to their curriculum as an advantageous element of youthful training. Hence it is that military literature has become interesting and attractive to a very large class, and a general knowledge of the art of war is the result. With a proper military system the United States could be the most powerful military nation in the world, without the burden, expense, and demoralizing influences of a large standing Army, and be spared a needless and terrible death-rate when large bodies of troops are called suddenly into the field.

Switzerland, with a population no greater than that of the State of Ohio, and a territory less than half its extent, and with a constitutional provision absolutely forbidding a standing army, can order at once into the field 200,000 armed, equipped, and disciplined troops with her admirable, economical, and thorough military system. This little republic, standing like an island of liberty amid an ocean of despotism, has maintained the freedom of her people through all the changes and convulsions of empires that have shaken the continent of Europe, while this same State of Ohio is powerless to protect her people and their property from the brutality and incendiarism of a lawless and insane mob.

One of the features of the Swiss military system is a hygienic corps, thoroughly organized and educated in the principle of sanitation.

The standing Army of the United States has a numerical

strength of about 30,000 men. These 30,000 men are supposed to defend 5,000 miles of sea-coast and 5,000 more miles of land frontier, to keep in subjection 300,000 Indians, 100,000 of whom are absolute savages ready at all times to exercise their brutal instincts. They have the care, keeping, and defence of 187 forts and barracks, including the fortifications of all the harbors on the Atlantic and Pacific oceans and the great lakes. It is natural to suppose that under these circumstances they must find their time pretty well occupied, and that in order to accomplish even a small fraction of the duty expected of them the Government should make liberal and ample provision for their physical care and comfort, as a mere money-saving operation, if for no other reason.

Let us see how this is. The quarters provided for the United States troops, throughout the wide expanse in which they are scattered, are as varied in their character and construction, and in the quality and quantity of material used, as are the homes and habitations of all the various nations of the earth, savage and civilized. Of all the 187 forts and barracks, no two are alike in plan, profile, or perspective. If there is any similarity, it is in the discomforts and inconveniences by which they are nearly all surrounded. Some of them have been located and constructed in such places and in such a manner that it would seem as if human ingenuity had been exercised to the utmost in order to achieve the climax of human stupidity. One of the most striking examples was old Fort Gibson on the Grand River, three miles from its confluence with the Arkansas, that acquired the name of the "charnel-house of the frontier." Built on the bottom land, the natural habitat and breeding-place of malaria, simply because it was convenient to a landing-place and the trouble and expense of conveying the supplies of the garrison to the high and healthy bluff would be saved. It was only after coffins became such a large item in the annual expenditure that it was deemed advisable to remove the post to the high ground, where it should have been placed originally. On the other hand there is Fort Rice, located on the west bank of the Missouri River, at the pleasant distance of five hundred miles from the nearest railway station. This post is eligibly situated from a sanitary point of view, no diseases occurring that can be charged to the soil or water, and few to the climate. Yet, the plan of the post is faulty, the site being

too small by one half for a post of four companies occupying it. The dormitories, in consequence, afford a sufficient air space for thirty men only, while the average of the companies has been seldom less than fifty men to a company. The overcrowding of the barracks and a more or less deprivation of fresh vegetable food resulted in seriously impairing the efficiency of the garrison. Scurvy became a formidable malady and destroyed many lives. As a matter of economy, after pretty well filling the post cemetery for several years in succession, it was deemed advisable to issue a greater allowance of vegetable food, and the scurvy ceased. But it was only after three years of experiment, the allowance of vegetables being increased each year, that this result was attained. Was there not a shade of cruelty in thus experimenting with the health and lives of these victims to ascertain just how small an amount of vegetable food a soldier could consume and yet be spared an attack of scurvy? A critical examination of all the 187 posts of the Army would undoubtedly result in finding radical defects in their sanitary condition; the absence of proper ventilation, of proper sewerage, or proper drainage.

The report of the Surgeon-General states: "There is practically no law nor regulation in our Army as to the amount of air-space which a soldier shall have, nor as to obtaining the opinion of medical officers in regard to sites and plans of habitations for the troops, and the result is that when the defects in such buildings, which are obvious to any one acquainted with the first principles of sanitary architecture, are pointed out, it is usually too late to remedy them." It is very true that many of the Army posts in the West are, in a measure, temporary, the advancing tide of population or the retreat or diminution of the Indian hostiles necessitating a frequent change of location. Nevertheless, economy as well as the duties of humanity demand that the utmost attention should be given to the well-being of the soldier wherever he is ordered to do duty. It is the implied part of the contract which the Government makes with him, *more sacred because it is unwritten*.

There was a grim humor in the report on the sanitary condition of the British army where it stated: "Until very recently the magnificent men and horses of the Household Cavalry were actually condemned, when quartered at Knightsbridge, to drink the foul contents of the Serpentine, where the bathers and washers in that stagnant pool are so numerous that

its waters become little better than filthy soapsuds. Although the men sickened from the effects no attention was paid to the matter until the horses refused to drink it and lost their condition, and as the horses had an absolute cash value it would not do to lose them, therefore a purer water supply was provided. The unfortunate quartermaster, who was sent to examine the water brought into the barracks from this source, caused the main tank to be opened, peeped incautiously into it, and staggered back asphyxiated by the miasma which burst forth. The unhappy inspector died of fever a few days after from smelling this water that the men and horses were required to drink." The report adds: "So ill-constructed, ill-drained, and ill-ventilated are these barracks in which the finest cavalry in the world are crowded away, that they are almost always the seats of disease incidental to the want of good air and cleanliness." The fact that our troops on the frontier are kept so constantly in the field, arduous as the duty is, offsets, in a large measure, the unhealthy influences of ill-constructed quarters; but the seaboard stations, the harbor forts, constructed at a time when little or no knowledge prevailed on the subject of sanitation, do not offer the same advantages of change of air and scene, and their condition is one that requires the serious consideration of the Government. They must not be regarded from the standpoint of their meagre occupancy under the present mistaken policy of Army reduction, but of their fitness for a complete armament and a full garrison. They may all be as impregnable and formidable as the Engineer Department claims (although the ease with which these engineer officers knocked down their own constructions on the Southern coast during the Civil War might lead to a doubt as to the reliability of their judgment in this matter).

They are, nevertheless, according to the best authority, unfit for habitation. Surgeon Bill, in his report of experiments on atmospheric impurities of soldiers' quarters, says: "I made no examination of the barracks of Governor's Island, nor of the casemate quarters of the men,—as well make an examination of a pigsty. They disregard every modern notion of hygiene. They are damp, dark, windy, and cold, and may or may not contain excess of carbonic anhydrid, etc.; probably they do not, and hence analytical results would merely mislead."

At Fort Adams, Newport, Rhode Island, another sea-coast fort, the quarters for officers and men are in the casemates. They

are practically cellars, and except in winter are excessively damp, so that fires are required in the heat of midsummer to make them habitable. The report states that "nothing can ever be done to make them proper dwellings. Arms and implements rust, and equipments decay rapidly. In the dormitories the allowance for air-space has, at times, been less than 300 feet per man, and were the estimated full garrison for this fort ever packed into it, the result would certainly be a pestilence."

This is the engineering and medical testimony regarding one of the most important of this class of forts. At Fort McHenry, Baltimore, the air-space allowed in the dormitories per man is 330 cubic feet! In these rooms containing this limited amount of air-space the soldiers who occupy them live almost entirely, there being no separate provision for lounging, smoking, reading, etc. Another set of quarters, built on the the sea-wall of that fort, have very low ceilings, and at night the air in the sleeping-rooms is very impure. The men's sinks are also located on the sea-wall, and are not built sufficiently far out to secure the removal of the excreta by the tide. It is not singular that "it has been found by observation that the sick-list of the companies occupying the sea-wall quarters is, in the spring, summer, and fall, *twice as large* as that of the companies within the fort!!" "The quarters for the officers are much out of repair, damp, and situated on low, badly drained ground." Fort McHenry is evidently not a paradise. At Fort Hamilton the quarters for the men are stone casemates forty-four by fourteen and twelve, badly ventilated, damp and leaky, and totally unfit for quarters. The air-space per man is about 175 cubic feet. There are no bathrooms or lavatories, the men performing their ordinary ablutions at the wells and cisterns near their quarters. The quarters occupied by the officers in the casemates are more unhealthy than those used by the men. They are intersected by numerous partitions, and have no ventilation,—but it is not necessary to multiply these criticisms. The evils complained of exist in all the seaboard forts, and what is worse, the most recent attempts at improved quarters that have been made have resulted in conspicuous failures, the combined result of cheapness, bad contractors, and of too little knowledge of the true principles involved in their construction on the part of those charged with the duty of these erections. How to provide remedies for the accumulated errors of years is not an easy matter. But it is not



so difficult to acquire a thorough knowledge of the principles of hygiene, which of late years has been so well demonstrated, and the application of which has brought forth such satisfactory results where they have been put in practice.

Military hygiene may be divided into three parts, viz.: exterior, interior, and personal.

Exterior hygiene is that which pertains to the site of the camp, garrison, or fort, including the topography, hydrography, soil, vegetation, drainage, disposition of refuse matter, road, walks, and all the external accessories essential to the comfort and convenience of the troops.

Interior hygiene relates to the quarters, dormitories, mess-hall, kitchen, hospital, sinks, water supply, sewerage, ventilation, disinfection, etc.

Personal hygiene relates to the individual soldier, his diet, clothing, habits, personal cleanliness, occupation, amusements, etc. This embraces the physical care and treatment of the soldier in the performance of his duties on the march, on guard, at drill, or on fatigue duty.

#### EXTERIOR HYGIENE.

The selection of a camp or the location of a site for more permanent quarters of troops is one of the most responsible duties that can devolve upon an officer, as upon a judicious selection depend the health, comfort, and even life of the command. The instances are much more numerous than would be believed, not only in general military history, but in our own country, where disastrous results have followed a carelessness or ignorance in the discharge of this important duty. The temptation to be in near proximity to wood and water has converted many a camp into a graveyard, and a great deal of money has been at times expended on the construction of quarters for troops that have been subsequently abandoned, simply on account of the unwholesomeness of the site. It is true, that military necessities—the advantages of a good strategic position and the absence of power to take and occupy property—is frequently the controlling element that must decide the question; but where adverse elements are not present, it is always wise to make, if possible, the character of the soil the chief factor to be considered. A porous soil with good natural drainage is worth a good deal for a camp, if only for a night's occupation on the march, while even

one night's occupation of an unwholesome location might infect a whole command. There is a disinfecting influence in a dry soil and the surrounding atmosphere that improves the health of the soldier, even if he only occupies it for a few hours. Next to the soil is the character of the drinking-water. Running water is not necessarily pure. A correct knowledge is essential regarding the source of the supply and its possible contamination. If there is any doubt, it should be boiled before using. When a site is chosen for *permanent* quarters, the greatest care should be exercised, from the very beginning of its occupation, that the soil shall not become polluted by refuse matter of any kind, and more especially that the water supply, whether from springs, streams, or wells, shall be guarded with the utmost vigilance against contamination. A large proportion of disease and mortality, throughout the world may be traced to polluted water, and even where no pronounced disease occurs, a large amount of diminished vital force and general debility has this for its source. The direction of the prevailing winds is another important factor to be considered in deciding upon permanent quarters. So, also, the points of the compass. Sunshine is the greatest element of health, and this should be present in all the quarters during some period of the day, while in the direction of the prevailing winds there should be nothing deleterious that could be borne to the dormitories. The character of the surrounding vegetation should also be considered. Shade-trees are essential elements of health, inasmuch as a proper adjustment and balance of animal and vegetable life is a part of the grand economy of nature, under the influence of which the world has been peopled, and if no shade-trees exist they should be planted as soon as the post is established. They furnish an inducement for the soldiers to remain out of their quarters when not on duty, which is a sanitary advantage and an agreeable source of recreation. Care should be taken, however, that the quarters themselves are not too much shaded and the sun's influence thereby excluded.

#### *Drainage.*

The thorough drainage of the soil, or the removal of all surplus moisture from it and the prevention of the accumulation of water in depressions on the surface, is the basis for a healthy garrison or camp. Without this fundamental precaution the site cannot be a healthy one. It requires, however, to be done sys-

tematically and thoroughly, or it had better not be done at all. An obstructed drain is more dangerous than ground having no drain at all. Depressions on the surface that have no outlet, even when there is not a permanent and only an occasional accumulation of water, are elements of danger that should not be overlooked or disregarded.

During the cholera visitation at Laredo, where the population was decimated, it was found that the violence of the disease was confined to the depressions, although no rain had fallen for twelve months.

*Disposal of excreta and other refuse matter.*

This is the unsolved problem of modern civilization. What to do with what nobody wants has been an unanswered question since Moses prescribed sanitary laws for the Hebrew tribes. In the large cities the system adopted for removing excreta has been that of water carriage, but it is obviously impossible that isolated camps or garrisons or forts can have the benefit of such a system, since it requires a profuse water supply. Nevertheless, the confined limits of a government reservation make the adoption of some other than the hap-hazard methods in vogue an important necessity. Nowhere else could the combustion of refuse be accomplished more readily and more satisfactorily, if the proper appliances for this purpose were erected in combination with auxiliary fuel; the heat derived from this source could be utilized for ventilation or any other useful purpose in garrison.

INTERIOR HYGIENE—*ventilation.*

Perhaps no one subject is less understood, while no other is of so much importance to troops in garrison, as that of proper ventilation of their quarters. A thorough system of ventilation secures the expulsion of impure air and the admission of pure air into the apartments occupied. How to do this most effectually and most economically is the most difficult of architectural problems. In order to preserve health and life, it must be done, whether it is done perfectly or imperfectly. The lungs, which inhale oxygen at every inspiration and exhale carbonic acid, destroy the purity of the immediate surrounding atmosphere in the proportion of the oxygen thus removed from it and the carbonic acid added to it, and when the atmosphere ceases to contain the necessary amount of oxygen or becomes contaminated

with a sufficient amount of carbonic acid, asphyxia takes place and death ensues. This is the case when the proportion of carbonic acid in tidal air reaches ten per cent. (the oxygen being diminished in like proportion), and it makes no difference whether this condition of the tidal air is brought about by shutting out fresh air, or by augmenting the number of persons who are consuming the same air, or by suffering combustion in any shape to carry off oxygen from the air. But the destruction of oxygen and the accumulation of carbonic acid cause injury long before the asphyxiating point is reached. Uneasiness and headache arise when less than one per cent. of the oxygen of the air is replaced by other matters, while the persistent breathing of such air tends to lower all kinds of vital energies and predisposes to disease. Hence the necessity of sufficient air and of ventilation for every human being. To be supplied with respiratory air in a fair state of purity, every man ought to have at least 800 cubic feet of space to himself, and that space ought to be accessible by direct or indirect channels to the outer atmosphere. To accomplish this properly, and secure a movement of the air without creating drafts and promoting discomfort, is not by any means an easy matter. An induced current in a vertical shaft, either by heat or a mechanical appliance, is expensive. A vertical shaft without an induced current is not effectual. A horizontal shaft at or near the ceiling, with openings into the outer air at each end and openings in the apartment at intervals, is the most economical, if not the most thorough, method, more so at least than a vertical shaft without an induced current. Revolving ventilators in the upper panes of the window-sash is an excellent contrivance in the absence of other methods.

#### *Disinfectants.*

The free and constant use of disinfectants is a paramount necessity and a paramount duty. It must be borne in mind that a very large proportion of diseases are due to the decomposition of organic matter. They are expressively called "filth diseases."

Decomposition is the separation of the chemical elements of matter by reason of the suspension or destruction of the vital force that held these chemical elements in combination. Becoming thus disengaged they furnish the pabulum for those germs or organic microscopic cells that, by their amazing power

of rapid increase, produce in the system the various diseases of which they form the essence and normal type. Without the nutrition that these cells obtain from the decomposed elements of organic matter, they could not acquire the power of propagating, by which alone their development is accomplished. Hence the necessity of suppressing decomposition everywhere in every form that it presents itself, and this can only be accomplished by the constant use of disinfectants, and the scrupulous cleansing of every thing that is soiled by filth in any form. Sulphate of iron appears to have more power as a disinfectant and purifier than almost any thing else, and as it is cheap and abundant its use ought to be profuse and free. It must be also borne in mind that the expired air thrown off from the lungs contains a greater or less quantity of animal matter of a highly decomposable character, and that this accumulates on the walls and wood-work of the dormitories, so that a constant use of soap in removing these impurities becomes a sanitary necessity that must not be overlooked. In a certain barracks in St. Petersburg, where disease was always breaking out without any apparent cause, it was found by microscopical examination, that the wood-work was covered with minute organisms, which having been destroyed by disinfectants and the whole scrubbed with strong alkaline solutions and painted, the quarters became perfectly healthy.

Sulphate of iron, both in its crude state and in solution, should be convenient for use at all points in the garrison where it might possibly be necessary, and should be regularly applied by men specially charged with that duty.

#### PERSONAL HYGIENE.

A bad cook is man's worst enemy, and the soldier has more reason to dread this enemy of his health and demon of the camp-fire, than the open enemy in the field. "*Le pot-au-feu du peuple est la base des empires.*" Frequent visits to the company pits in rear of a camp will convince any one that there is a strong relation between the character of the stools and the company's sick-list, which can be traced in very many cases to the negligence of the company's cook in serving underdone food to the men, and a change of cooks often changes the entire character of the sick-list. I know this from repeated personal experience, having made very many inspections with this end in view, and I am free to say that this kind of inspection should be among the daily duties of the officers commanding troops.

Personal cleanliness is not as systematically required, nor all the conveniences for it as well provided, as they should be. At one or two stations admirable facilities for regularly bathing all the year round have been provided for the troops. Now, instead of these being isolated instances, this and all other sanitary arrangements ought to be uniformly adopted throughout the Army, and made compulsory in their observance. Instead of its being recorded that this or that officer did so much during his period of command to improve this or that post, these improvements should be independent of individual forethought and intelligence, and should emanate from an intelligent head of the War Department, who recognizes his responsibility to the soldiers, who recognizes an advanced knowledge on this important subject, who recognizes his duty and does it.

The limits of a single paper do not permit me to dwell longer on this subject. There is a field for thought and study, and a wider field for action, open to those in the military service who appreciate its great importance. At the best I have only been able to briefly allude to the innumerable evils that exist.

May I express the hope that the suggestions thrown out will not be disregarded.

NOTE.—Improvements have been made at some of the forts referred to since the official reports quoted, but not to an adequate extent.



## REVIEWS.

### SMITH'S "CONFEDERATE WAR PAPERS."\*

This is a book in four parts by General G. W. Smith, late Major-General, Confederate Army. It is a contribution to the controversies going on among ex-officers of the Confederacy; but its real value is in the new light it throws upon the battle of Seven Pines, or Fair Oaks. The title of the book conveys no idea of its contents. The first, third, and fourth parts are mainly a defence of the author; and the second part is a defence of his friend, General Mansfield Lovell.

The book adds one more to the proofs that the President of the ex-Confederacy had to contend with formidable opposition inside of his own lines. Nevertheless, he stood from beginning to end at the head of the able and ambitious generals and politicians turbulently thrown together by secession. That fact is evidence of his ability, earnestness of purpose, and force of character. That he should have bitter opponents was inevitable. The author of this book appears as one of them; but he says something on both sides of the subject and comments with moderation.

Appointed Major-General as soon as he joined the Confederacy in September, 1861, and entrusted with a large share of confidence, General Smith, nevertheless, resigned on account of discontent as early as February, 1863. Some of the difficulties Mr. Davis had to face among his own officers are indicated by an official note from General Smith, recorded in this volume. He publishes it, no doubt, as creditable. It is as follows: "October 15, 1862.—To the Secretary of War: Having been informed to-day that six major-generals, my juniors, have been recently promoted to rank me in the army, I respectfully ask the reasons therefor." If such a letter had been sent by one of our officers to Secretary Stanton, it would have received the brief endorsement "*dismiss him*"; or if it had come up in the earlier days of "good order and military discipline"—for example, during the Mexican War, in which General Smith was distinguished,—if the writer were not sent before a court-martial, his military life would have been embittered by General Scott's serious disapprobation. In this instance the threatening opening made by General Smith's peremptory demand on his government to give him its reasons for making promotions led to his withdrawal from the Confederate military service, but not, as he carefully states, from the Confederate cause. He said, on the contrary: "I shall endeavor, in another sphere, to aid in securing the independence of the Confederate States, leaving to others equally capable, of higher rank and better supported, the task of performing duties heretofore imposed upon me." In what sphere General Smith aided the Confederacy after he left its

\* "Confederate War Papers.—Fairfax Court-House, New Orleans, Seven Pines, Richmond and North Carolina." By Gustavus W. Smith, late Major-General, Confederate States Army. New York: Atlantic Publishing and Engraving Co.

military service is not shown by his book. In urging his claims upon the Confederacy, General Smith said in one of his letters that he had the merit of having *preceded* his State in joining the "Cause." He might have made this claim stronger by stating that to join the "Cause" he left the Union, though his States of nativity and adoption—Kentucky and New York—remained in it.

When General Smith reported for duty at Fairfax Court-House in September, 1861, General J. E. Johnston, commanding the army, and General Beauregard, second in command, were on bad terms with Mr. Davis, the Confederate President. General Smith, the third in rank, was on friendly terms with all of them. The three Generals were in favor of having the army under them strengthened and authorized to invade the North that fall, by turning Washington. With a view to convincing Mr. Davis of the wisdom of this course, and securing the necessary reinforcements, he was invited to visit Head-quarters, at Fairfax Court-House, for a conference, and accepted, thinking the conference was for general purposes. The meeting took place early in October—the exact date is not stated. General Smith was the common friend. The Generals wanted "to concentrate in that vicinity, as rapidly as possible, all the available forces of the Confederacy, cross the Potomac with the army thus reinforced, and by pressing the fighting in the enemy's country, make a determined effort in the autumn of 1861 to compel the Northern States to recognize our (the Southern) independence."

Mr. Davis, on the other hand, said that "the whole country was demanding protection at his hands, and praying for arms and troops for defence"; that he hoped for arms from abroad before spring; and he advocated minor military operations—some of which he specified—to occupy, instruct, and encourage the troops during the winter. The Generals, finding themselves disappointed in the one grand operation which they advocated, failed to undertake the minor operations pointed out by their President. Bad feeling between the two parties continued to grow; questions arose among the people as to the war policy of Mr. Davis; and it seemed that the President might be credited with the views the Generals had advocated and he had opposed. The conference held in October was informal, and was not recorded. But in January following (1862) General Smith wrote out his recollection of it, signed the paper, obtained the signatures of Johnston and Beauregard, and filed the document away. He says in his book that the statement was "mildly drawn, care being taken to make it as respectful as possible, consistent with the facts." He could have given this statement a better character by simply asserting that it was a true record of what occurred. He adds: "It was not intended to publish it unless it became necessary to use it in vindication of the truth." That is to say, it was a secret document, prepared by the Confederate President's subordinates, held by one of them to be drawn against his superior officer if the holder thought best. By the time General Smith drew up the paper in January, 1862, he had, no doubt, joined Johnston and Beauregard in opposition to their President. Mr. Davis says in his book: "Twenty years after the event I learned of this secret report by one party—without notice having been given to the other—of a conversation said to have lasted two hours. I have noticed the improbabilities and inconsistencies of the paper, and, without remark, I submit to honorable men, the concealment from me in which it was prepared, whereby they may judge of the chances for such co-intelligence as needs must exist between the Executive and the commanders of armies to insure attainable success."

There is not likely to be much difference of opinion upon this issue. The verdict will be in favor of the ex-President of the "lost cause."

A word as to the merits of the war policy, for which the Generals were anxious to secure credit at the expense of their President. The author says: "I believed

that by the course proposed we could, before winter set in, convince the people of the Northern States, that it was unwise for them to persist in trying to hold the Southern people in the Union at the point of the bayonet. By pressing the fighting in the enemy's country we expected to compel the Northern States to recognize our independence." As the author anticipated such remarkable results, it is not strange that he deems it important to fix on Mr. Davis the responsibility for "the failure of the Confederate Army in Virginia to make an active campaign of invasion, fighting on Northern soil, in the autumn of 1861." But General Smith was mistaken in his premises. Bayonets were necessary to settle the questions which were open at the time, but they are not required to "hold the Southern people in the Union." Furthermore, his great expectations from an invasion in the fall of 1861 would not have been realized. It would not have compelled the Northern States to recognize the independence of the Southern Confederacy. General Smith's belief, affected no doubt by his hope, may have been due somewhat to the fact that Northern valor and soldiery were at that time underestimated in the South; Union troops were looked upon, not as earnest men contending for a principle, but as "Lincoln hirelings." One Southern man, some people thought, was equal in war to five or six Yankees. The truth is, that in addition to the desire for human freedom, as an independent principle, there was in the North, a determination to preserve the government, and a deep-seated, old-fashioned patriotism which many prominent Southerners did not reckon upon. The war, from the nature of the case, could not be decided by a dash. It had to be a trial of courage, endurance, and resources combined. But there were more direct considerations which also tended to induce Mr. Davis to reject the war policy presented by his Generals at Fairfax Court-House. He saw, no doubt, that while the proposed policy was tempting from a purely military point of view, it took small account of political conditions which he could not disregard. "The whole country," as he told the Generals, "was demanding protection at his hands, and praying for arms and troops for defence." He could not have consolidated his people for the long struggle which had to come, if he had denied defence to all, for the sole purpose of an invasion from Virginia. General Smith admits that there "was the hope and expectation that, before the end of winter, arms would be introduced into the country; and *all were confident that we could then not only protect our own country, but successfully invade that of the enemy.*" This admission alone is a sufficient answer for Mr. Davis to the war policy of his Generals.

#### *Seven Pines.*

Part III. is entitled "Notes on the Battle of Seven Pines, or Fair Oaks." This is much the most important part of the work.

During that action Smith was next in rank to Johnston, the General-in-chief, and commanded the left wing of the Confederate Army during the first day, and the whole army from 7 P.M. on the first day when Johnston was wounded till 1 P.M. on the second day. Historians have failed to commend his part in the action. In his book, Smith, with drawn sabre, boldly charges upon them all; attacking especially the accounts given by Jefferson Davis in his "Rise and Fall of the Confederacy," Joseph E. Johnston in his "Narrative," Richard Taylor in his "Destruction and Reconstruction," writers on the Confederate side; and Swinton and Webb, Union authors.

To weigh the points General Smith makes, it is necessary to recall the main features of the situation at the time the battle of Seven Pines was fought.

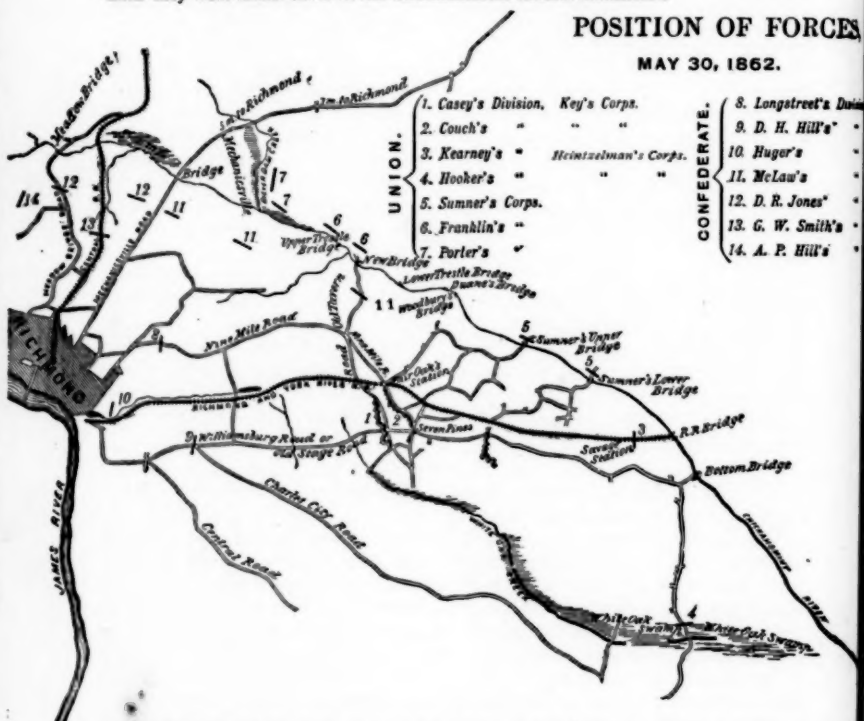
As McClellan followed the retiring Confederates up the Peninsula from Williamsburg, in May, 1861, his main line of advance, nearly due west, was the Richmond and Williamsburg, or Old Stage, road. About ten miles east of Richmond this road crosses the Chickahominy River by Bottom's Bridge. The part of the Chickahominy

with which we are concerned runs almost in a right line from northwest to southeast. At the point on the Williamsburg road where it is spanned by Bottom's Bridge, the stream is about forty feet wide, and for fifteen or twenty miles above it varies in width from forty to seventy-five or eighty feet. It is skirted by heavy timber, and its valley, or bottom-land, varying from half a mile to a mile in width, is low and marshy, and is subject to overflow. A mile above Bottom's Bridge the stream is crossed by the bridge of the Richmond and York River Railroad. This railroad runs from Richmond to West Point at the head of York River. It crosses the Pamunky River just above the point where that stream empties into the York. This crossing, called White House, only about twelve miles by the railroad from the Chickahominy, was the Union depôt—York and Pamunky rivers being open to our shipping.

As they withdrew from Williamsburg, the Confederates crossed to the Richmond side of the Chickahominy, and destroyed the bridges as far as they could, but did not undertake to defend the crossings. They did not appear disposed to make a stand until they were under cover of the entrenchments around Richmond.

### POSITION OF FORCES

MAY 30, 1862.



\* McClellan's advance (Keyes' 4th Corps) reached the Chickahominy at Bottom's Bridge on the 20th of May, forded the stream, and occupied the high ground on the west side. Although the season was unusually wet, the Chickahominy was then fordable at all crossings above Bottom's Bridge. Neither the river nor the enemy, therefore, prevented the Union Army from continuing the advance. But McClellan

threw his army forward into line upon his leading corps as his left, and established the centre and right of it in rear of the Chickahominy, the left being in front of that stream. He deemed this disposition of his centre and right necessary to guard his line of communication (twelve miles long) with his *dépôt* at the White House, and to protect his right and rear; although he assumed that, as a final result, the opposing army would take shelter behind its defences near Richmond, and that a siege would ensue.

As the Chickahominy was liable to rise suddenly, become impassable, and sweep away temporary bridges, and thus cut him off from his base on the Pamunky, McClellan was not willing to throw all of his army across the stream until he had built bridges which would enable him to pass troops and supplies with certainty and celerity. While constructing these bridges he held a strong position. On the left a stream called White-Oak branch rises near Richmond, flows easterly just south of the Williamsburg road, and empties into the Chickahominy two or three miles below Bottom's Bridge. The valley of this creek, from its mouth for several miles toward Richmond, is a difficult and in most places an impassable morass, called White-Oak swamp. The left wing of the Army, Keyes' 4th Corps, with Heintzelman's 3d Corps as Reserve, was thus well covered. A stream called Beaver-Dam creek runs nearly due south, and empties into the Chickahominy at a point north of Richmond. Upon the high bank of this creek, at right angles to his main line along the Chickahominy, the Union commander posted his right flank. His line thus established, covered, speaking broadly, the north-eastern quarter of a circle drawn around Richmond with a radius of about twelve miles, and extended from Bottom's Bridge, east of Richmond, along the Chickahominy to Meadow Bridge north of that city, a distance of about fifteen miles. The weakness of the position was in the fact that the Army was astride a stream which might, and did, rise so as to prevent one wing from supporting the other.

The Confederate Army was posted between the Chickahominy and Richmond, and was necessarily well concentrated; but the entrenchments around the city were weak.

In addition to the danger he was in from McClellan, the Confederate commander was menaced by McDowell, who, with over forty thousand men and a hundred guns (if not deterred by counter movements against Washington), threatened to advance on McClellan's right, from Fredericksburg some sixty miles north of Richmond.

Johnston, with his entire army well in hand, had resolved to pursue an offensive-defensive policy. While he was deliberating upon striking a blow at McClellan's left near Bottom's Bridge—or waiting an opportunity to do so,—he heard (May 27th) that McDowell was advancing from Fredericksburg. Thereupon he resolved to cross the upper Chickahominy and (on 29th May) destroy or “double-up” McClellan's right before McDowell could get within supporting distance; and for this purpose he strengthened his left and placed General G. W. Smith in command of his left wing. But learning on the 28th that McDowell had abandoned the advance—had in fact turned north,—Johnston countermanded his orders for attacking the Union right.\*

In the meantime McClellan had been pushing his left wing forward. On the 24th Casey's division (of Keyes' 4th Corps) occupied and entrenched a point called Seven Pines, only seven miles from Richmond by the main Williamsburg road. Couch's division (the other part of Keyes' Corps) was not far in rear; and Heintzelman's 3d Corps had crossed the Chickahominy at Bottom's Bridge, and was guarding the road to the left through White-Oak swamp, and ready to support the troops in front.

\* General Smith repeats with a little sly sarcasm how the Confederate President, Davis, hurried through his office work on the morning of the 29th, and rode about the field trying to find the performance, which he finally learned from subordinates that Johnston—with whom he was not on cordial terms—had countermanded, without notifying him.

On the 29th Casey's division was pushed forward a half or three quarters of a mile to the front of Seven Pines, and began to entrench; and Couch occupied the position vacated by Casey at Seven Pines.

By the 30th the time had come when the Confederate commander felt that some positive move must be made in support of his offensive-defensive policy. The season, being unusually wet, increased actually and relatively the difficulties of the Union Army. The Chickahominy had overflowed the bottom-lands, destroyed some of the new bridges, and delayed the completion of others. The elements were decidedly in favor of the Confederates.

On the 30th Johnston, encouraged by a reconnoissance in force, decided to attack McClellan's left next day, the 31st, and the battle of Seven Pines, or Fair Oaks, was the result.

To use almost literally General Smith's description—which agrees generally with that of Union writers—the point known as Seven Pines is merely the junction of two roads; it is seven miles east of Richmond, on the Williamsburg (or Old Stage) road, which starts out from the southern part of the city. From the northern suburb of the city another road starts out, and runs in an easterly direction, keeping about two miles to the north of the Williamsburg road for a distance of seven miles from Richmond, where it forks at a point called Old Tavern. The fork to the left leads northerly to New Bridge on the Chickahominy, opposite McClellan's centre. The fork to the right runs southeasterly two miles, where it intersects the Williamsburg road at Seven Pines. This fork of two miles from Old Tavern to Seven Pines, with the main road (seven miles) from Old Tavern to Richmond, is the "Nine-Mile Road." The Richmond and York River Railroad lies between the Williamsburg and Nine-Mile roads, until it crosses the latter at a point called Fair Oaks, a mile northwest from Seven Pines.

The Charles City road branches off from the Williamsburg road at a point three miles east of Richmond, and leads to the southeast, below White-Oak swamp; but before reaching the swamp, going by that road from Richmond, lateral country roads lead from the Charles City, to the Williamsburg, road.

The country about Seven Pines is generally flat and swampy, with farms and heavy timber interspersed. Although there are many country roads through the neighborhood, it is a bad region for army movements in rainy weather, even on the roads.

The natural features of the battle-field afforded no special favor either to attack or defence; but the Confederates had some advantage in the fact that the two best highways—the Williamsburg and Nine-Mile roads,—lying at a safe and convenient distance apart, led from their camps and intersected at the point occupied by the Union forces; thus enabling a ready concentration upon the field of battle.

The official morning report made at the time ("Records of Rebellion," vol. XI., part III., p. 204) shows that on the 31st of May, McClellan's Army of the Potomac in the Peninsula, had 98,008 present for duty, not including McDowell's army, 41,000 near Fredericksburg, nor Wool's command of 11,514 for duty, at Fort Monroe.

No return of the Confederate forces for May 31st appears; but a return for May 21st (vol. XI., part III., p. 530) gives the strength of Johnston's Army (Smith's 1st Division, Longstreet's 2d Division, Magruder's 3d Division, D. H. Hill's 4th Division, Cavalry Brigade, and Artillery Reserve) as 53,688. But before the battle of Seven Pines the force was increased by Huger's division, 5,000, and by other reinforcements, which ran it up, no doubt, to the figures given by General Smith, 62,000 present on May 31st.

On the 30th—when Johnston ordered the attack,—although the Chickahominy was



high, McClellan had several bridges by which, at that time, he could cross to support his left wing. But during the night of the 30th-31st the rain fell in torrents, and raised the already swollen stream, so as almost to prove the ruin of the Union left. Sumner got to its relief by anticipating orders. Receiving instructions at 1 P.M. to "be in readiness to move at a moment's warning," he did not simply prepare his command, but, hearing the sound of battle on the opposite side of the river, he formed his two divisions, and marched each to the bridge it had built across the Chickahominy, and waited with "the heads of columns on the bridges," holding the flooring down against the rising waters, for word to advance. The orders came at two o'clock. Just before that, one of the bridges was swept from under the feet of the men, but both divisions rushed across the other bridge before it became impassable, and reached the field in time to avert the impending disaster. This is one of the few instances in which a great result in war can be traced directly to a single exhibition of good soldieryship by a subordinate. In auditing the public services of its soldiers this government cannot over-estimate its debt to General E. V. Sumner for his conduct on the 31st of May, 1862.

Johnston's purpose of attacking Keyes at Seven Pines was adopted before the heavy rain of the night of the 30th-31st, and was not suggested by the advantage which that storm gave him by destroying bridges. His orders were based upon the assumption that the Chickahominy, as he said, would "be high—passable only at the bridges." In fact, the battle was due rather to the course of events, than to his conception. Speaking of Casey's advance beyond Seven Pines, and Longstreet's desire to attack him, Johnston said in a letter to Generals Whiting and G. W. Smith on the 29th: "Who knows but in the course of the morning Longstreet's scheme may accomplish itself. *If we get into a fight here, you must hurry to help us.*" Up to that time certainly Johnston had not decided to attack. This is further shown by his instructions of the 30th to Huger, hereafter quoted. But during the day—the 30th—Longstreet was with him in person, and received verbal instructions for next day's operations.

Johnston's orders for this battle constitute one of the principal topics discussed in General Smith's book. They do not show a well defined purpose in the commander's mind.

The general control of the attack was entrusted to Longstreet, who had his own division 14,000, D. H. Hill's division 11,000, and Huger's division 5,000, a force of 30,000 men present. In addition to this, Hood's brigade of Smith's division joined Longstreet during the afternoon of the battle. Longstreet's orders from Johnston were verbal. D. H. Hill received orders from Longstreet to conduct the attack. Huger, who had arrived only the day before the battle, though the senior, was required to act under Longstreet; but, nevertheless, Johnston gave him written orders as if he were independent. Huger was blamed for not taking an earlier and more active part than he did, but he appears to have defended himself successfully against the accusations. His orders from Johnston were as follows:

"May 30, 1862, 8:40 P.M.

"MAJOR-GENERAL HUGER:—*General*: The reports of Major-General D. H. Hill give me the impression that the enemy is in considerable strength in his front. It seems to me necessary that we should increase our force also. *For that object I wish to concentrate the troops of your division on the Charles City road, and concentrate the troops of Major-General Hill on that to Williamsburg. To do this, it will be necessary for you to move as early in the morning as possible, to relieve the brigade of General Hill's division now on the Charles City road. The road is the second large one diverging to the right from the Williamsburg road; the first turns off near the toll-gate. On reaching your position on the Charles City road, learn at once the routes to the main*

roads to Richmond on your right and left, especially those to the left, and try and find guides. *Be ready, if an action should be begun on your left, to fall upon the enemy's flank.*

"Most respectfully your obedient servant,

"J. E. JOHNSTON, General.

"P. S.—It is important to move early."

Certainly under such orders, clearly expressing a defensive purpose, and telling him *to be ready* if an action should *be begun* on his left, an officer could not be expected to begin an action himself. But apparently, lest he might do something, the Confederate commander sent Huger a second order as follows :

"May 31st.

"MAJOR-GENERAL HUGER :—General : I fear that in my note of last evening, of which there is no copy, I was too positive on the subject of YOUR ATTACKING the enemy's left flank.\* It will of course be necessary for you to know what force is before you first. I hope to be able to have that ascertained for you by cavalry. As our main force will be on your left, it will be necessary for your progress to the front to conform at first to that of General Hill. If you find no strong body in your front, it will be well to aid General Hill ; but then, a strong reserve should be retained to cover our right.

"Yours truly,

"J. E. JOHNSTON, General."

These orders are in "Records of Rebellion," vol. XI., part I., page 938. They show conclusively that Johnston did not expect Huger to begin an attack, which beginning Longstreet reported that he lost several hours waiting for. In fact, the most that these orders required of Huger was to coöperate in a battle which was to be begun by others. If he found no strong body in his front, it would "*be well to aid General Hill*"; but even in that case he was to retain "*a strong reserve*" to cover the right.

Huger claimed, and it does not appear to have been controverted, that though he was the senior he was ready to take Longstreet's orders, and so expressed himself to Longstreet at the time, but that he received no orders from that officer.

Yet, in the face of these facts, Longstreet said in a note to Johnston dated June 7th ("Records of Rebellion," vol. XI., part III., p. 580) : "The failure of complete success on Saturday, May 31st, I attribute to the slow movements of General Huger's command. This threw perhaps the hardest part of the battle upon my own poor division. \* \* \* I can't help but think a display of his forces on the left flank of the enemy by General Huger would have completed the affair, and given Whiting as easy and pretty a game as was ever had upon a battle-field. Slow men are a little out of place upon the field." The Records do not show that Johnston repelled the imputation put upon Huger.

Although the attack was entrusted to the right wing, some 30,000 men under Longstreet, the Confederate commander gave orders for coöperation by his left wing. At 9:15 P.M. on the 30th he wrote General G. W. Smith, commanding the left wing ("Records of Rebellion," vol. XI., part III., p. 563) : "If nothing prevents we will fall upon the enemy in front of Major-General Hill \* \* \* as early as possible. The Chickahominy will be high, and passable only at the bridges,—a great advantage to us. Please be ready to move by the Nine-Mile road, coming as early as possible to the point at which the road to New Bridge turns off. Should there be cause of haste,† General McLaws on your approach will be ordered to leave his ground for you, that he may reinforce General Longstreet."

\* Italics by the reviewer in all instances in this review.

† That is to say, should Longstreet need assistance before you reach McLaws's position.

The part assigned to the left by this order was but little, if any, more aggressive than that allotted to Huger on the right. Evidently all the fighting orders were given to Longstreet verbally. Yet both Smith and Huger were blamed as if they had received orders to attack; and the former has been forced to defend himself in a book against the charge of having failed to do what there is nothing to show he was ordered to do, or ought to have done. General Smith shows quite clearly that historians of the battle of Seven Pines have wronged him. While other writers may have been ignorant, Johnston, according to General Smith, knew the truth, but did not divulge it—in fact, suppressed it. Smith, the second in command, was on intimate terms with Johnston, the chief. He shows in his book that he was fully informed as to Johnston's plans and intentions. When the movement was ordered on the 30th, Longstreet's division was on the Nine-Mile road,\* and Johnston directed that it should proceed to the attack by that road; while D. H. Hill's division advanced by the Williamsburg road on which it was lying; and Huger's by the Charles City road, further to the right—south. That would have brought Longstreet's division upon Keyes' right flank, the weakness of which is shown by the following remark from Keyes' recent book ("Fifty Years' Observations," etc., p. 452): "The left of my lines was all protected by the White-Oak swamp, but the right was on ground so favorable to the approach of the enemy, and so far from the Chickahominy, that if Johnston had attacked there an hour or two earlier than he did, I could have made but a feeble defence comparatively, and every man of us would have been killed, captured, or driven into the swamp or river before assistance could have reached us." The loss of this grand opportunity, the existence of which is admitted on all sides, has been charged by most, if not all, writers on the subject to General G. W. Smith. By his book he succeeds in transferring the responsibility to Johnston and Longstreet. He proves, using Johnston as principal witness, that Johnston's orders required *Longstreet's division* to proceed by the Nine-Mile road against the weak point of Keyes' line described above; but that on the morning of the 31st Smith ascertained and informed Johnston that Longstreet's division had left that road and gone down to the Williamsburg road and fallen in behind Hill. Johnston sent orders for Longstreet, if not too late, to send at least part of his division back to proceed as ordered by the Nine-Mile road. But it was too late, or was thought to be. Having entrusted the management of the attack to Longstreet, Johnston left him to conduct it by the Williamsburg road, and went himself along the Nine-Mile road with G. W. Smith's division, and held that division until late in the afternoon, watching the north side of the Chickahominy. Smith stated these particulars in his official report, dated June 23, 1862, but they were stricken out by request of Johnston, because he did not want "to make generally known the misunderstanding between Longstreet and himself in regard to the direction in which Longstreet's division was to move into action." Certainly it is due to General Smith, as well as to history, that these important points should become generally known now.

But after giving due weight to the fact that Longstreet, not Smith, was ordered to attack Keyes' exposed right flank by the Nine-Mile road, it remains true that Smith's division and Smith in person early in the day reached the position on that road from which the fatal attack could and should have been made. The question is: Who was to blame for the failure of Smith's division to make it at the right time? The answer is: Johnston, as proved by Smith's book. The same conclusion must be drawn from Johnston's official report, dated June 24, '62 (vol. XI., part I., pp. 933, 934, "Records of Rebellion"). He says: "General Smith was to march to the junction of the New Bridge road and the Nine-Mile road, to be in readiness either to fall on Keyes' flank or to cover Longstreet's left. \* \* \* In the

\* See map.

meantime *I had placed myself on the left of the force employed in his (Longstreet's) attack, with the division of General Smith, that I might be on a part of the field where I could observe and be ready to meet any counter-movements which the enemy's General might make against our centre or left.* Owing to the peculiar condition of the atmosphere, the sound of the musketry did not reach us.\* *I consequently deferred giving the signal for General Smith's advance until about four o'clock, at which time Major Jasper S. Whiting, of General Smith's staff, whom I had sent to learn the state of affairs with General Longstreet's column, returned, reporting that it was pressing on with vigor. Smith's troops were at once moved forward."*

This proves beyond all cavil that Smith's attack was made at the very time and place that Johnston himself designated; and there does not appear to be any charge that the attack was not well conducted. But, as has been shown, Johnston, who was with the division, did not order the attack until four o'clock, and by the time it was under way one of the "counter-movements of the enemy's General," which Johnston had placed himself on his left to watch, had actually been made. Sumner, with Sedgwick's division, reached the field from the north side of the Chickahominy, at 4:30, and was joined later by Richardson's division; so that no sooner had Smith commenced his attack upon Couch, of Keyes' corps, than he was compelled to turn and defend himself against Sumner, who was on his flank and threatening his rear.

To summarize: Keyes' 4th Corps, about 9,000 strong, consisting of Casey's and Couch's divisions, the former composed mainly of raw troops, constituted the advance of the Union left wing, and was the force upon which the Confederate assault was made. McClellan's orders to Keyes were to hold Seven Pines strongly. Keyes made a line of entrenchments a mile in rear, (east) of Seven Pines, then moved forward and occupied the forks of the road at Seven Pines, and made a line of rifle pits a mile long from Seven Pines to Fair Oaks. On the 29th, Keyes moved Casey's division forward a half a mile or more on the Williamsburg road, covering a point where a country road started north to Old Tavern, on the Nine-Mile road. Couch's division, at the same time, was posted in Casey's old position at Seven Pines, and both divisions set to work to strengthen their lines by rifle pits and by slashing the timber for *abatis*. Casey made a redoubt for artillery on the left, his line extending on both sides of the Williamsburg road. From the nature of the country, Casey's pickets were only a thousand yards in advance of his line.

Heintzelman's 3d Corps had taken position between Seven Pines and Bottom's Bridge; Hooker's division on the left, watching the road through White-Oak swamp, and Kearney's division on the right and front, near Savage Station. On the 25th, Heintzelman was placed in general command of the two corps—his own and Keyes'.

On the 31st, Keyes' forces occupied two weakly-entrenched lines—to wit: the line of Casey's division, about half a mile in front of Seven Pines, and the line of Couch's division at Seven Pines. Besides these, there was the third line of rifle pits a mile in rear of Seven Pines. The left flank of the Union forces was well covered by White-Oak swamp, watched by Hooker; but the right flank of Casey and Couch resting on or near the Nine-Mile road, by which the enemy could advance, was entirely exposed. Fortunately for the Union cause, the attack came by the Williamsburg road upon the strongest point. Nevertheless, it was successful, due, mainly, to its

\* This is precisely what occurred at the battle of Perryville, except that Johnston had ordered and was expecting the sound of the musketry fire he anxiously listened for but failed to hear; whereas, Buell simply failed to hear musketry fire which he had not ordered, and which he had no particular reason to expect. It is a coincidence, also, that in both cases notice of the heavy firing, which began about two o'clock, reached the commanders by staff-officers about four o'clock, and thereupon the wing not engaged was immediately ordered into action.

inherent strength—partly to the fact, that Casey's division was composed largely of raw troops, and partly also to the fact that the enemy, with the advantage of the initiative, had quietly concentrated for the attack; whereas Keyes, though not surprised, had to call his troops from their labors and resist, with fragments at a time, the heavy onslaught made upon him by a solid column. He was beaten in detail.

When convinced that the attack was real, Casey sent one regiment forward to support his pickets—that, of course, was quickly driven back. In the meantime, he formed a line of one battery and four regiments of infantry, a quarter of a mile in front of his rifle pits. This too was soon swept out of the fight, and his main line in the rifle pits was that much the weaker. Soon the rifle pits, but thinly manned, were attacked, outflanked, and carried, and the last of Casey's division was driven to the rear. The full weight of the Confederate assault then fell upon Couch, who had already been weakened by efforts to sustain Casey, and cut his line in two between Seven Pines and Fair Oaks, driving him in person, with Abercrombie's brigade, to the northeast, where, at 4:30 P.M., Sumner succored him in the desperate resistance he was making against G. W. Smith's attack by the Nine-Mile road.

In due time Heintzelman's troops aided in checking the Confederate advance on the left and centre, as Sumner did on the right; but night closed in with the Confederates in possession of the battle-field; Johnston, the Confederate commander, was taken to the rear, wounded, about 7 P.M., and the command devolved upon Major-General G. W. Smith, the author of the book under review. Smith held command until 1 P.M. the next day, June 1st, when, by Jefferson Davis' order, he was superseded on the field by General R. E. Lee, and, naturally enough, his feelings have been on edge ever since. During the night both sides re-formed their shattered ranks, rectified their lines, and prepared to attack next morning.

There were three Union corps in the field, but they were beyond support; the rise in the Chickahominy having swept away the bridges. Their situation was perilous, but they were equal to the emergency. Seizing the initiative, they attacked with vigor at daylight, recovered their lost ground, and, after a severe contest, re-occupied the positions from which they had been driven, and the status before the battle was resumed.

The result, as so often happened during the war, was not satisfactory to either side—less satisfactory, no doubt, to the Confederate than the Union side, because they started with several advantages, among them the initiative and an overpowering force at the point of attack, and because also the victory which they ought to have gained promised great fruits. They lost one of the best opportunities they had in the war.

In judging the principal actors in this battle, it should be borne in mind that the war was young at that time. These opposing armies had done a good deal of digging, and some fighting about Yorktown and Williamsburg, and had floundered through the mud from the lower Peninsula up to the Chickahominy, but, except the few officers and men who may have been in the battle of Bull Run, they had not had a serious engagement. Both sides were astounded, possibly a little dazed, by the realities of battle, which they experienced for the first time at Seven Pines. Casey says in his report, it was "the most terrible fire of musketry I have ever witnessed"; and when Longstreet had fought only five or six of his thirteen brigades he called for help on the 31st, and actually begged for it during next day's fight.

The Confederate commander's reason for not concentrating his force on the three isolated Union corps about Seven Pines, east of Richmond, on June 1st, probably was that, not knowing the exact state of the Chickahominy, he feared he might expose Richmond and the rear of his army to the Union corps, which threatened him from their positions only six or seven miles north of the city.

In relation to his failure to advance upon Richmond after the success of June 1st, the Union commander says in his official report: "The only available means for uniting our forces at Fair Oaks, for an advance upon Richmond after the battle, was to march the troops from Mechanicsville and other points on the left bank of the Chickahominy down to Bottom's Bridge, and thence over the Williamsburg road to Fair Oaks, a distance of about twenty-three miles. In the condition of the roads at that time, this march could not have been made with artillery in less than two days; within which time the enemy would have been secure within his entrenchments around Richmond. \* \* \* Therefore I held the positions already gained, and completed our crossings as rapidly as possible."

On the 26th of June, nearly a month after the battle of Seven Pines, the Confederates assumed the offensive, attacked the Union right flank north of the Chickahominy, and the "seven days'" battle, and Union withdrawal to James River, began, and the campaign of the Peninsula ended.

Part IV. of General Smith's book tells of his services in command at Richmond from August, 1862,—when the Confederates, having driven McClellan away from Richmond, moved against Pope,—until his resignation was accepted, February 17, 1863. In his letter of resignation General Smith said: "I venture the opinion that not one of the six major-generals promoted to rank me have as many enlisted men under them as are within the limits of my command and under my orders."

Prompted, perhaps misled, by disappointment, indicated in the foregoing extract, General Smith insisted upon the acceptance of his resignation; but—so little do we know ourselves—mistaking the moving cause of his own action. "My *sole* desire is," he says, "to aid in resisting Northern despotism—to drive back the invaders and establish our independence." But animated, as he thought, by that "sole desire," he found that his "usefulness was so diminished" by having six juniors promoted over him, that he, an able and regularly educated soldier, quit the military service of the Confederacy, and, so far as he was concerned, left the invaders free to come. "Had I," he says, "been allowed to command my own division, I would have been not only satisfied to command it and *it alone* to the end of the war, but would have been proud and glad to remain with it and share its fate; and the government, as far as concerned me, might have selected six hundred instead of six of my juniors and made them lieutenant-generals,—it would have been no affair of mine."

General Smith was no doubt laboring under a delusion. If not, he probably is the only major-general the world has ever known, whose love for his first command could fully satisfy a vaulting ambition, and fit the commander to be overslaughed forever without a pang.

J. B. F.

#### BIRKHIMER'S "ARTILLERY OF THE UNITED STATES."\*

Military literature of domestic manufacture has never been very abundant in this country. This is to be regretted, and ought to be remedied. The author of the work before us deserves the thanks of his professional brethren. No sooner had he discovered this neglected field than he determined to cultivate a corner of it, and the result of his labor is creditable to his zeal, perseverance, and ability. He has set an example which, it is to be hoped, many will follow in other corners of the field.

The author divides his work into thirteen chapters, four of which refer to organization, four to administration, three to matériel, and two to tactics. His opportunities for obtaining accurate information seem to have been excellent, and he has succeeded in weaving the materials collected into a sketch at once interesting and instructive.

\*"Historical Sketch of the Artillery of the United States Army." By W. E. Birkhimer, 1st Lieut. 3d Artillery, Washington, 1885.



The birth of the artillery of the United States Army is dealt with in detail. We learn that the prototypes of the four regiments which for so many years constituted the corps, sprang into existence almost simultaneously, and soon reached a perfection of organization that might with advantage be taken as a model to-day. That the infant artillery attained to such perfection in so short a time is attributed partly to the necessities of the case, and partly to the ability of the organizers, but principally and primarily to the fact that it was early given an official head.

In following our author through the pages which recite the early history of our corps, we encounter many professional curiosities. For instance, we learn that the present interpretation of the law of promotion is older than the law itself; and had for its author no less a personage than George Washington. But it was not favorably received by the regiments, and when Captain Eustis of the Third was promoted to a Majority in the Fourth, our author says: "It required all the authority of the Commander-in-chief to sustain him in his position. The system thus early adopted by order of the Commander-in-chief seems to have grown into a custom, which the law, afterward passed, was intended either to abrogate or establish. If the latter was the purpose, the language of the law was unfortunately chosen; if the former, the custom was too strong for it, and it has miserably failed.

The vicissitudes of the artillery arm during the period immediately following the Revolutionary War are gracefully sketched, and we learn that in 1792 the artillery was associated with infantry and cavalry in an organization called a legion; in 1794 it was joined to the engineers, and the compound was called a corps; in 1798 the artillerists and engineers were rechristened and called a regiment, and were finally separated in 1802. After it had set up for itself, the artillery led a precarious existence until 1808, when it was strengthened by the addition of a regiment of light artillery, light in name only, as there was no law to mount it until 1812. In 1812 war was impending, and the 2d and 3d Regiments were called into existence as part of the "additional military force" called for by the emergency.

The new artillery thus improvised must have been wellnigh worthless, for we are told that General Dearborn complained that "whatever relates to our artillery and ammunition remains in a chaotic state," and General Hampton was troubled with "raw captains, just entering the artillery service." We notice also traces of an evil with which we were made familiar during the Rebellion: "The most competent artillery officers were not with their commands, but otherwise employed on 'indispensable' duty."

In 1815 we find that the artillery had another upheaval. Its battalions were distributed between two geographical divisions—the northern and southern, which seem to have been distinct and independent organizations. The artillery of the two divisions were theoretically the corps of artillery; but "what's in a name?" There was no unity, no life, no head to the corps. In 1821 it closed its worthless existence, and the first four regiments were organized pretty much as we now know them. The Mexican War added two companies to each regiment, and the War of the Rebellion gave us the 5th.

The field artillery, which has had a legal existence since 1821, had no real existence until 1838, when Ringgold's battery was mounted and equipped as horse artillery. In 1839 Ringgold's and three other batteries—one from each regiment—were assembled in Camp Washington, near Trenton, N. J., for instruction. This early attempt to establish a light-artillery school shows that the fathers of field artillery in this country fully appreciated the necessities of the arm. But field artillery is an expensive arm to maintain, and the four light companies would have had a slim chance of prolonged existence if the Mexican War had not opportunely enabled them to de-

monstrate their usefulness and establish their popularity. The Mexican War mounted four more companies, giving two light batteries to each regiment, and with the exception of a few intermittent chills of economic origin, and some ill-natured kicks from Jefferson Davis, the light companies maintained their existence until 1861.

In chapter III. we find an interesting account of "the organization of artillery for service"—that is, its distribution for battle during the various wars in which this country has been engaged. The assignment of two pieces to a brigade seems to have been the rule during the Revolutionary War. The artillery, however, was under the orders of the brigade commander "for service only." The same rule seems to have been followed, in spirit at least, during the War of 1812. In the Mexican War General Scott assigned the artillery to divisions. In 1861 General McClellan copied General Scott, assigning his artillery to divisions in the ratio of three guns per thousand infantry, and in addition organizing a strong "Artillery Reserve." Toward the close of the war circumstances made it possible and advisable to greatly reduce the ratio of artillery to infantry, and for a time to dispense entirely with the Artillery Reserve. The brigade, or as it was called on the Southern side the battalion, of artillery, consisting of four or more batteries, our author holds to be the best organization for active service, and he points out the disadvantages resulting from the fact that such an organization was entirely ignored by the law. Consequently the brigade of artillery had to improvise a staff at the expense of its batteries.

In the IV. chapter our author sketches the history of Artillery Reserves in our Armies. In the Revolutionary War he finds this important arm of battle specially provided for, and although it seems to have entirely disappeared in 1812 and the war with Mexico, it was revived and maintained throughout almost the entire four years of the Rebellion. He demonstrates the special necessity for a strong Artillery Reserve in the armies which, under our system, are hastily organized on the eve of war, and defines the functions of such an organization on the field of battle.

In his introduction to the subject of administration the author depicts, with a few clever touches, the acknowledged superiority of the artillery officers in the Revolutionary War, and illustrates their efforts to maintain the precedence over officers of other arms accorded to their professional brethren under the Crown. But these airs of superiority were hardly in accordance with the principles upon which our system was built, and Congress in 1776 found it necessary to clip their wings by enacting that "on courts-martial officers of artillery should take rank according to the dates of their commissions and no otherwise.

In the early years of its existence our artillery was not much bothered with drill-books. So far as instruction was concerned, the captains seem to have been free to follow their inclinations. Nevertheless, after a year's training in the school of war, incompetency and inefficiency seem to have been the exceptions. Our author finds that all the laboratories and workshops in which war materials were prepared were practically in the hands of artillery officers, and indeed that may have been the "other" indispensable duty which kept so many officers away from their commands. In 1802, a kind of ordnance corps was organized; which relieved the artillery from all technical duties until 1821, when the two corps were united, and after leading a kind of cat-and-dog life for eleven years were again separated, and, finally, absolutely divorced in 1838, when the Ordnance Department, as we now know it, was first organized.

In connection with the subject of artillery instruction, the author introduces a comprehensive historical sketch of the United States Artillery School. Established in 1824, as the Artillery School of Practice, it had hardly got into good working order when it was broken up by the necessities arising out of the Seminole War in 1836, and no opportunity was found for its re-establishment until 1857. Its second lease of

life was even shorter than the first. Necessity again put an end to its existence in 1861. In 1867 it was revived for the third time, and has ever since continued its useful work under the name of the United States Artillery School. While our author seems to fully appreciate the merits of this institution, he is not fully in accord with its methods. He thinks the scope of the school is entirely inadequate to existing circumstances, and that the curriculum should be expanded so as to include modern languages—French and German—at least. In short, he wants to convert the artillery school into a staff college. There is undoubtedly much truth in what he says on this subject, and no friend of the school is without the hope that his ideas may not only be realized but exceeded. The school is steadily drifting in that direction. Already several of the 1st lieutenants at the school are graduates of former classes, and in a few more years all the 1st lieutenants of the corps will have traversed the course. Then the curriculum must be expanded, or the institution will degenerate into a hive of drones.

What the author says with reference to artillery instruction at Posts is undoubtedly sound, but the cast-iron method of giving lessons to be learned and recited by grown men has never been known to work well in any profession. It would be better to prescribe work—professional work,—the proper performance of which requires familiarity with certain sciences, and then insist upon proper performance. This system it is believed would not only induce study and research, but the officer would be educated, his usefulness enhanced, and his ideas expanded without the humiliating feeling of being a gray-haired school-boy with a lesson to learn, or the narrowing effect of studying a prescribed text-book.

The attempts which have been made to give systematic instruction to our field batteries are ably sketched, and the opinions advanced on the subject of schools for that arm are undoubtedly sound. That at least one brigade of field artillery should be organized and maintained as a war-school for that arm will not be disputed by any artillery officer. If batteries must be maintained at Regimental Head-quarters, as regimental schools, let them be taken from the batteries not brigaded.

The history of artillery-firing practice in our Army is not very voluminous; covering only ten pages of the book under review. Yet it seems to be all there. But there is a genuine revival on the subject of marksmanship in progress in the Army, and it is to be hoped that it will extend to the artillery. There is only one thing that prevents it, and our author puts his finger on that without hesitation. He says that for this purpose "the allowance of ammunition is inadequate." The perfection attained in small-arms marksmanship has cost immense quantities of ammunition, and perfection in artillery marksmanship must be paid for in the same way.

The chapters devoted to the technical duties of artillery are very instructive. During the Revolutionary War the preparation of war material was of vital importance. So far as provisions, clothing, and transportation were concerned, the articles required existed, and the duties imposed upon officers were chiefly collecting, transporting, and issuing to the troops. With artillery material and ammunition it was very different. They did not exist in the country, and the officers in charge of this department of supply had either to procure them from abroad or manufacture them. So far as ammunition and artillery carriages were concerned, the latter course was pursued, and there can be no better evidence of the ability of the officers to whom this department was entrusted, than is afforded by its success. The Continental Congress tried two methods. At first the whole direction and control of "every thing and everybody" was placed in the hands of the commander of the artillery, and so continued for about a year. It seems to have been entirely successful. But the power and patronage devolved upon the Chief of Artillery made it impossible for outsiders to let well enough alone. The office of Commissary-General of Military Supplies was created,

and to the incumbent were transferred all the technical troops and duties of the artillery. The new system was a failure, and by degrees the control of the technical troops reverted to the Chief of Artillery, and in 1782 the Commissary-General and his department practically disappeared. Comment upon this statement of facts is unnecessary.

The technical troops were the prototypes of our Ordnance Department. They were organized into a—so-called—regiment, and must have either been unwilling or too willing to do any purely military duty. At any rate Congress found it necessary to declare by resolution that the military rank of its officers "was only to take place as officers of that corps."

After the close of the Revolutionary War the control of the technical artillery seems to have drifted about a good deal, and finally to have settled on the Secretary of War, where it remained until 1812, when the office of Commissary-General of Ordnance was created. In 1821 the technical artillery or ordnance corps of that day was united with the combatant branch, thus constituting the corps of artillery. But the two branches failed to harmonize, and it was deemed wise to separate them in 1832, and in 1838 the technical branch became the Ordnance Department.

Our author is manifestly opposed to the separation of the two branches, and he by no means stands alone on that question. But whatever we may think of the wisdom of such a separation, we must accept it so long as it legally exists, and may as well do so with a good grace. The technical artillery under independent control certainly failed during the Revolutionary War, and some people think that the Ordnance Department was not a brilliant success during the Rebellion. But that does not prove that they would be better men if they nominally belonged to the artillery. The amalgamation would only be nominal. The specialists would continue in charge of their specialties, and the duties now strictly "defined by law" would be performed by precisely the same officers as before the consolidation, for no one doubts their ability and fitness. We will not believe that they, as at present organized, are a corps of chameleons ever ready to change their character to suit their interests, eager to usurp the more important functions of the combatant branch, and eternally ignoring its intellectual existence. There is a great deal of apparent truth in what the author says on this subject, and yet the ordnance corps is blameless. If the Secretary of War, or Congressional committees will persist in asking the Chief of Ordnance questions which they no doubt would address to the Chief of Artillery if there were such an officer, shall the Chief of Ordnance decline to answer upon "technical" grounds? And if he answers correctly what have we to regret except that Congress has decreed that we shall be officially deaf and dumb. Would to God we had a chief of our own to answer for us, but since we have not, thank God that the Chief of Ordnance is able to do it! Let us unite all our efforts to induce Congress to give us a mouth to speak with, then perhaps purely artillery questions will be answered from a purely artillery fountain head, and the Chief of Ordnance will have more time to attend to his laboratories and workshops. As to the desire of ordnance officers to assume combatant functions—referred to in connection with the war in Mexico,—so long as it does not take the shape of exercising commands forbidden by law, I think it laudable. I am willing to meet them on that question in the spirit of Miles O'Reilly:

"The right to be kilt I'll divoid with them,  
And devil a word I'll say."

In the VII. chapter, the author sketches very concisely the unreadiness with which we have been handicapped at the beginning of all our wars; and, in the VIII., the status and functions of our improvised chiefs of artillery. The point which the author desires to make, and which he fortifies with numerous precedents, is that the Chief of

Artillery should not only be the administrative head, but the commander of his corps. He shows that when the command of the artillery was withdrawn from its chief, as it was in the Army of the Potomac, just before Chancellorsville, that confusion resulted, and that, in order to reduce the chaos which threatened disaster, it was found necessary to re-invest the chief with the full functions of command on the battle-field. The real difficulty seems to be a legal one. The Chief of Artillery has no legal status in our Army, and he must content himself with such crumbs of command as are dropped from the Commanding General's table.

In chapter IX., we learn that the artillery carriages of the Revolutionary period were not French, as is generally supposed, but American copies of English carriages; and that this was due to the admiration in which General Knox held the English system. Soon after the close of the war, the Gribeauval system was introduced, and held its ground until 1829, when its superiority began to be questioned, and, after much experimenting and many Boards, it was finally superseded by the Stock Trail system in 1836. Recent experiments have been directed chiefly toward determining the best material for carriage construction. The three pages devoted to siege, garrison, and sea-coast carriages contain an admirably clear sketch of their development in this country.

In chapter X., the author sketches the history of gun-metal in the United States. Bronze, he says, was the great gun-metal during the Revolution, but about 1800, when 24- and 32-pounders were introduced, considerations of economy compelled the adoption of cast iron, which continued to be the gun-metal for all calibres up to 1836. In 1838, a fierce contest was carried on in the Ordnance Board between the advocates of bronze and the advocates of iron, which resulted practically in a victory for bronze, as far, at least, as field guns were concerned. For heavy guns, however, cast iron was exclusively used down to 1861.

The introduction of rifled cannon reopened the question of gun-metal, and wrought iron superseded bronze for field guns, and also to reinforce cast-iron rifles of large calibre. Rodman's improvements in the method of casting, however, has prolonged the life of smooth bores and cast iron, and it is by no means unlikely that it may again become the principal gun-metal—at least for heavy guns. In later years, steel, and steel in combination with iron, have come into favor for gun construction, and perhaps take precedence over all other material to-day.

Chapter XI., in which the author traces the history of the development of the various systems of cannon which have prevailed in this country, will repay careful study. It calls for no comment, and is already condensed to its lowest terms.

In the XII. and XIII. chapters, the author reviews, with much acumen and fairness, the various drill-books which have been authoritatively issued to the artillery of the United States Army. His criticisms on the present field-artillery "tactics," as they are called, will find a hearty response from most artillery-men. There is one defect, however, which he has overlooked, and it pervades the whole system. For infantry, commands should be short, sharp, and expressive. "Right, Front, into Line" is admirable as an infantry command, but for a battery it is abominable. The *direction* of the movement is indicated by the very first syllable of the command, and any light artillery-man knows how almost impossible it is to catch that syllable half the time. Now, the old command, "Forward into Line—Right Oblique," is admirable. The direction of the movement is indicated in the second clause of the command, when every ear is likely to be strained to catch it. Light-battery commands should not be short and sharp: they should be long and musical, and they should be sung. Infantry-men laugh at the sing-song tone of light-battery commands, and think them absurd. They are not; they are necessary; and if the objectors were to drill a few

times under a crusty commander, with the battery at a trot on a hard field, they would find out all about it.

We have now reached the end of the volume. We have enjoyed its perusal, and been benefited by its contents. It contains the genealogy of American artillery, and will be read with interest by every officer of the arm who cares to know about its remote ancestors or contemporary vein. "C."

TOURGÉE'S "APPEAL TO CÆSAR." \*

Judge Tourgée, the author of "A Fool's Errand" and "Bricks without Straw," has now written a book which will probably have fewer readers than his delightful truth-telling fictions, not because it has less merit, but more; for many quite intelligent persons can better appreciate the works of a romancer than those of a statesman and philosopher. This book gives assurance that its author may claim a place in both classifications, while it shows that the framers of the reconstruction which followed rebellion had little claim to either.

The metaphorical title means an appeal to the people, to the mighty heart and brain of the nation, which, however prone to error, the author hopes will never persist in it long enough to render it fatal. The argument of the work is that since the nation has thrust the dangerous right of suffrage upon a vast illiterate mass of people but a few generations removed from the lowest state of barbarism, a right which their late masters have kept them, by force and fraud, from exercising, a right which has brought on them persecution with no benefit, the nation is in duty bound to remedy, at its own expense, the evil it has wrought, by educating that ignorant mass up to the mental condition which is alone compatible with the right they nominally possess. How this is to be done in the most effective and least expensive manner, the author points out. It is a work not for States or a geographical section, but for the nation.

The author depicts the idiosyncrasies of the South in vivid colors, but without prejudice or bitterness, while he exposes the short-sightedness of the North without partiality, and both in a way that betokens the deep study of a master-mind, while he brings into view all the redeeming traits and conditions of the emancipated race, showing that in many things they have disappointed the hopes of their enemies and the fears of their friends. They are, to say the least, no more depraved than antecedents and changes would lead us to expect; they are self-sustaining, and many, if not most of them, have augmented their little means, while some of them have acquired wealth. They are not dying out, but increasing, and in numbers are gaining on the whites in all of the cotton States, which are threatened with becoming in time Africanized. The danger of this growth, if allowed to grow in ignorance, is clearly pointed out. But the labored research and deep reflection evinced by every chapter cannot be properly dealt with in a brief review.

How the great difficulty might have been avoided in the beginning of reconstruction, the author of the appeal does not discuss; but I venture to give a few words to the sad theme of *might have been*. We must remember that the amendment of the Constitution which brought about negro suffrage did not make it universally imperative. It demanded no universality, but only equality of right between races. Authority competent to frame a constitution for a State lately in rebellion could have made illiteracy a bar to the right of voting, if applied alike to white and black. But no such authority could then be exercised by the subjugated, nor did it come within the scope of normal Congressional powers to form State constitutions. Besides this, too many discordant heads, not over-gifted with discretion, could never have agreed on a sensible plan. But the military authority of the President, still in force over

\* "An Appeal to Cæsar," by A. Tourgée. New York: Forde, Howard, & Hulbert.



the States lately in rebellion, might, *during a recess of Congress*, have initiated a measure which, if it seemed to work well at first, and if the President were popular, might have secured the ratification of Congress, and become permanent from its inherent force.

If a recess of sufficient length had occurred soon after the submission of the South, the President, as Commander-in-chief of the Army and Navy, might have issued a general order to the following effect, subject to the ratification of Congress :

"The recent constitutions of the States lately in rebellion shall, for the present, be re-established, for local State government only, in all matters not incompatible with the present condition of national affairs ; but of that compatibility, and of the fitness of all enactments by the Legislatures of those States, the President will be the judge, and sanction or veto the measures through the military governors of the several States.

"One element in the recent constitutions of those States, which in its recent shape is incompatible with the present condition of national affairs, must at once be changed, under the demand of public necessity. A large portion of the inhabitants of those States, reared in the dense ignorance of bondage, and unused to any share in self-government, are unfit for the exercise of suffrage, but, under the Constitution of the United States, as now amended, cannot be deprived of it as a race or as a class reared in slavery. Therefore, to exclude that race from a dangerous right, and with it another class almost equally unfit, no citizen of the States here referred to shall have the privilege of voting in any political election unless he be able to read understandingly and write intelligibly. Proper authority shall be established to ascertain and certify to those qualifications in voters."

It is not necessary to discuss what other regulations might properly have entered into the proclamation. To do this would require many pages ; but the above clause contains the substance of what was most essential, and if it had gone into effect would have averted all the evils which cry out for an appeal to Caesar. The States in question would have accepted partial autonomy as a godsend, in the hope of something better soon to follow ; and their Legislatures, knowing that any factious or imprudent measures they might pass would be promptly vetoed, would have been cautious in their enactments, for such caution would hasten a return of their States to a normal condition. The same power which excluded ignorance from suffrage could have excluded treason and other criminality ; but this matter need not here be discussed. In some States the barring out of illiteracy would perhaps have cut off many poor but loyal men from the use of the ballot, and have allowed it to the rich and disloyal ; but all minor evils like this would have been overbalanced by the good to come with them.

"But," the reader will perhaps inquire, "if such Executive action could have been carried out only during a recess, would Congress, at its next session, have ratified, or even tolerated, such an act of military despotism, wholesome though it were?" That would have depended mainly on who the President was who originated the measure. Such a proceeding by Andrew Johnson, who had a marvellous faculty for quarrelling with Congress and everybody, would never have been tolerated ; but had it come from Lincoln it might have been. Radical Republicans and rabid Abolitionists would have opposed it ; but it is not improbable that rational Republicans and unbigoted Democrats would have been sufficiently numerous in Congress to outvote the opposing faction. The candid and reflective of both parties had great faith in the sagacity and honesty of the martyr.

It is my belief that Lincoln, had he lived, would have taken up some such plan as I have outlined. It is known that, on the collapse of the Rebellion, he was in favor of dealing with the rebel States, at first, as *de facto* governments, and of making them a

stepping-stone for reconstruction ; and though he was then dissuaded from the attempt, it is not unlikely that the idea, somewhat modified, would have come back to him on due reflection. I have never heard what opinion he entertained in regard to the political capacity of the freedman ; but, judging from the strong rationality of his intellect, and his superiority to unreasoning prejudice, I believe he would never have proved a Red or a Black Republican.

A woful day it was for the nation, and specially woful for the South, when that great man of the age fell before the pistol of the assassin. Wilkes Booth did for the section he called his own what the dynamiters are to-day doing for Ireland.

R. M. P.

CLARK'S "INDIAN SIGN LANGUAGE."\*

In September last a party of army officers, cut off for a week from mail and telegraph communication whilst passing through the wilderness between Forts McKinney and Washakie, was approaching the latter Post when late one night a courier arrived bringing dispatches and a mail. In one of the letters the death of Capt. W. P. Clark, 2d Cavalry, was mentioned. A day or two afterward the courier, who was the Post guide and interpreter at Fort Washakie, told us something which excited great curiosity and surprise. A few days before leaving he was riding some miles from the Post when he met an Indian, who, without uttering a word, and by means of *the sign language alone*, told him that Capt. Clark was dead ! The Indian had heard the news at the Agency, and imparted it to a man of whose language he could not speak a word. Now, that Indians, like deaf-mutes, could communicate by "signs" we all know, but here was an *unexpected* event occurring *thousands of miles* away, and yet this Indian, without using his tongue at all, was enabled to communicate it to another. The assertion was at first rather startling. Capt. Clark, although well known in person to many of the Plains Indians, could be known by *his name* to the very few capable of speaking English, but those who did know him must have some way of designating him, and here was the key to the whole mystery. Indians designate each other by some attribute of the person, or by some incident in the life of the person referred to (see page 266). Capt. Clark, whilst serving with Indian scouts, wore a white felt hat, and hence was known as "the chief with the white hat." His proficiency in the sign language was such as to make him a marked man amongst them, and hence it was easy for an Indian to designate him as "the chief of the white hat who talked so well with his hands." Of course, if the man spoken to had not known of Capt. Clark, he could not have guessed who was alluded to, nor indeed could you or I know who was alluded to when Washington's name was mentioned if we had never before heard of him. All can understand how the person once being designated, it was an easy matter for the Indian to state by signs that he had gone to sleep, died, or "gone under." (See page 150.)

The distinguished officer, whose death was in this way spread amongst the people who held him in high regard, left behind him a lasting monument of his skill, industry, and untiring energy. His book on the "sign language" exhibits not only these qualities, but deep and careful research.

Every language must have its *dictionary*, but this one of Capt. Clark's gives, not only what we may call the "pronunciation" of words by the hands, but the meaning and derivation of the signs used, as well as descriptions of most of the interesting ceremonies, customs, and habits of Indians ; and these not only make his "dictionary" exceedingly interesting reading to the general student, but must add very much to the popular information regarding a race not well understood, even in this country, and now rapidly disappearing before the advance of civilization. The quickness with

\* "Indian Sign Language," By Capt. W. P. Clark, U. S. A.

which the Indian picks up and adopts "signs" for persons and things, novel to them, is remarkable. The distinguishing peculiarity of a person will be hit upon instantly, and even a white man will at once recognize the sign used to designate an individual. Thus a person pitted with the small-pox will be designated by closing the fingers and *dabbing* them over the face; one wearing a felt hat, the crown of which is forced up into a ridge, will be referred to by placing the hands on each side of the head, and moving them up to meet each other, as a man would move them to form the hat into the shape referred to; whilst a colonel with an eagle on his shoulder would be called "the man whose spirit is a bird."

One who, like Capt. Clark, was quick to note, understand, and use these designations, would at once become a marked man amongst Indians, and having extensive communication with them, he soon established for himself a great reputation and influence. His untimely death was a great loss not only to them, but to the military service in which he had already distinguished himself.

J. G.

#### MAGNIN-STERNBERG'S "BACTERIA."\*

Bacteria have within the past few years been made the subject of study by the best microscopists, and have been demonstrated to play an important rôle in the production of many diseases, and in the induction of chemical changes in organic substances. Among the many workers in this field the names of Pasteur, Robin, Cohn, and Koch in Europe, and of Sternberg in this country, are well known. At present there is perhaps too great a tendency to attribute to bacteria a part in the production of all diseases, some medical men believing that we have at last found the true morbid origin in this fungus, each disease having its special bacillus. But this bacteromania must soon run its course, and healthy discussion will eventually define the limit of the power of the bacterium. Still at present it is sufficiently well demonstrated that many diseases do have an origin distinctly traceable to the activity of the fungi whose history the author has so well studied.

Just now special interest has been excited in this subject by the well-known investigations of the Prussian Commission, headed by Dr. Koch, on the origin of cholera, which he claims to have discovered in a bacillus peculiar to that disease. This view is combated by many observers in Europe and in this country, and one enterprising savant abroad has contemptuously offered to swallow a pint of Koch's culture fluid and guarantee that no harm will come to him.

In the preface of the present volume Dr. Sternberg states that the work of Dr. Magnin, which comprises the first part of this book, published in Paris in 1878, and translated by the writer in 1880, gave an admirable *résumé* of our knowledge of bacteria at the date of its publication, but very considerable progress has been made since then, especially as regards methods of manipulation, the comparative value of various chemical reagents as germicides and antiseptics, and the rôle of the bacteria in infectious diseases. With a view to keeping the work fully up to the progress of science in this direction, the writer has added a chapter upon each of these various subjects, and one upon "Bacteria in Surgical Lesions." Dr. Sternberg's contribution to this volume exceeds that of Dr. Magnin, so that out of the 456 pages which it comprises, only 150 are from the pen of the original author of the work.

Bacteria, as understood to-day by most botanists, belong to the vegetable kingdom, and are the lowest organisms known. They are found in two forms: the globular, or monads; and as bodies more or less filiform, the bacterium proper. Their dimensions oscillate in a general way from the smallest of all microscopic beings; some of

\*"Bacteria." By Dr. Antoine Magnin and George M. Sternberg, M.D., F.R.M.S., Major and Surgeon U. S. Army, etc. New York: William Wood & Co., 1884, pp. 494.

them are situated at the extreme limit of our highest magnifying power. The globular bacteria are the smallest, and the dimensions of some species are so minute that they cannot be measured directly, while the largest only attain the length of two tenths of a millimetre. Between these two extremes there are all intermediate sizes. They are grouped in different classes according to their form, as torulæ, zoogloea, etc. The enumeration of these classes occupies over thirty pages.

The second part treats of the development of bacteria. Three theories have been advanced as to their mode of origin :

(1) By heterogenesis—that is, by creation outright from mineral or organic substances (spontaneous generation).

(2) That they come directly from individuals like themselves, by one of the known modes of generation—fission, spores, etc.

(3) Finally, that they are derived from organisms already existing, and are nothing more than different states or phases of development of known species of which the life cycle is not yet known. The second and third theories are the only ones having any advocates at present.

Germ of bacteria exist in great abundance in air, water, and on the surface and within the interior of the organs of the human body in communication with the exterior. Thus they are found in great numbers and kinds in the mouth, the intestines, etc., but no matter in what medium they live they must have water, nitrogen, carbon, and oxygen, as well as certain mineral salts, which enter in quantities exceedingly minute into their composition. They are reproduced by fission—that is, transverse division of the cell—and by the production of spores; the latter are less easily destroyed than the bacterium proper.

These small organizations are the cause of all kinds of fermentation, of putrefaction, and of nitrification, and they have been proved to be the cause of various pathological conditions found in man and animals—as anthrax in the former, and chicken cholera, etc., in the latter.

Dr. Sternberg begins his portion of the work with a very clear and practical chapter on Technology, in which he treats fully of the methods of cultivation, of obtaining pure stock in which to isolate and cultivate any special spore, of the preparation of culture flasks, of the sterilization of culture fluids, methods of manipulating, culture ovens, staining bacteria in order to render them easier of recognition, by the way they are acted on by the staining fluid, and thus permit of their separation from any other small object in the fluid.

Photographing bacteria is merely touched upon, the author having last year published a very exhaustive treatise on the subject. The chapter concludes with a very interesting discussion on the "attenuation of virus," and the protection afforded to animals by inoculating them with the thus modified microbe.

The fourth part, that on Germicides and Antiseptics, is perhaps the most practical one in the book to the general public, and comprises the result of much of the author's own labors. A germicide is an agent which has power to destroy the vitality of the various species of bacteria known to us. They are also antiseptics, but an antiseptic is not necessarily a germicide, for experiment proves that certain substances arrest putrefaction which have not the power to kill the bacteria to which it is due. This is a very important distinction, and one not to be forgotten. Then follows a list of substances popularly supposed to possess germicidal power. In glancing over this one is struck by the slight value of certain chemicals on which the public, and we may add physicians, have for years pinned their faith. Thus carbolic acid stands quite low in the scale. Sulphate of iron is a good disinfectant but a poor germicide, while sulphate of copper is an efficient one. Heat is a good germicide. A few bacteria can withstand

a temperature of 212° F. for a time, while others are destroyed by a temperature of 129° F. Bichloride of mercury (corrosive sublimate) is considered by all experimenters as holding the first rank as a germicide and antiseptic agent. The author then takes up the subject of bacteria in infectious diseases, than which no more important subject has engaged the attention of physicians and sanitarians. That these minute organisms are the sole cause of some diseases has been proved without the shadow of a doubt by cultivating the spores through many generations and then inoculating with the last culture, which has invariably produced the disease of which they were the supposed cause. Thus malignant pustule, erysipelas, and tuberculosis have each been traced to a definite bacillus. That other infectious diseases have a similar cause is highly probable, but this has not yet been demonstrated.

The last section of this valuable work treats of bacteria in surgical lesions, an important subject to the military as well as civil surgeon, but space forbids a more lengthy review of this most interesting and valuable work.

The author has placed not only professional men but civilians under great obligations for the excellent work he has done and is doing in this department of investigation. No doubt the time will come when, as the result of such labors, many diseases for which we can at present assign no cause will be found to be dependent on these small organisms, when military camps as well as thickly settled towns will be protected from their ravages, and when military and sanitary officers will be held responsible for the spread of infectious diseases. The book is beautifully illustrated by thirty-eight photo-micrographs, besides lithographs and wood-cuts, which greatly enhance its value.

An extensive bibliography completes the volume.

M. J. A.

#### PARKMAN'S "MONTCALM AND WOLFE." \*

Mr. Parkman has added two more volumes to his interesting works. "Montcalm and Wolfe" cover the period (1749—1762) of the conflict between France and England for mastery on this continent.

Much new and valuable manuscript material has been used to shed additional light on the events of this exciting and interesting period.

From the time of the first campaign against Crown Point under Col. William Johnson, against Fort Duquesne (Braddock and Washington), and against the French and Acadians at Beauséjour, to the death of the two commanders—Wolfe and Montcalm—and the fall of Quebec, September 13, 1759, the reader is held in unremitting and thrilling interest.

Suitable maps, and some of them original maps, of battle-fields accompany the text.

R. C.

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#### RECEIVED FOR REVIEW.

*Historical Sketch of the Artillery of the United States Army.* By W. E. Birkhimer, 1st Lieut. 3d Artillery.

*War of the Rebellion. Official Records of the Union and Confederate Armies. Series I. Vol. XI. Part III.* (Washington.) Government Printing-Office. 1884.

*Professional Papers of the Corps of Royal Engineers.* Royal Engineers Institute Occasional Papers. Vol. IX. 1883. (London.) 1884.

*Light-Artillery Harness and its Proper Adjustment.* By Captain J. P. Sanger, First Regiment Artillery. Bvt. Major U. S. Army. Aide-de-Camp. 1884.

\* "Montcalm and Wolfe." By Francis Parkman. 2 vols. Boston: Little, Brown, & Co., 1884.

## OUR EXCHANGES.

**Artiglieria e Genio.** The *August* and *September* numbers of this valuable periodical are before us, from which the following extracts are taken :

"*Initial Velocities.*" The advantages to be derived by a greater initial velocity than at present made use of in small-arms have been recognized for a long time past, could the difficulties in the way be obviated. The fundamental equation  $Pv = pV$  (disregarding the weight of the charge) gives us the necessary relations of the quantities involved.  $P$  is the weight of the piece,  $v$  its velocity ;  $p$  is the weight of the projectile, and  $V$  the initial velocity. Now the factor  $v$  being limited in value, owing to the relatively small resistance that the shoulders can offer, it follows that the factor  $V$  can not be sensibly increased, without making the other two quantities,  $p$  and  $P$ , undergo compensating modifications. But the weight of the piece cannot be over kgs. 4.3, without rendering the arm unacceptable to the infantry ; and on the other hand, the weight  $p$  cannot be diminished below twenty (20) grammes without causing the projectile to lose its most indispensable qualities. Therefore, making these substitutions with a supposed desired initial velocity of 700 metres we would have

$$\begin{aligned} \text{Gr. } 4300 \times V &= \text{Gr. } 20 \times 700 \\ \text{or } V &= \frac{20 \times 700}{4300} = 3.25 \text{ metres.} \end{aligned}$$

Experience shows, that this is too great a value for  $v$ , and therefore it would be impossible to hope for greater initial velocity than 500 metres, as with the Jahrman, or 510 metres, as with the Mauser-Milanovich, etc., with our present systems. But if, as Major Plessix says, the living force of the shock cannot be diminished, are there no means of reducing its effect in such a way that the blow may be felt progressively upon the shoulder, and thus enable a man to store up the whole blow, but in a succession of fractional blows, as it were, without pain or fatigue ? Trials of this kind have been made by some of the Powers, but up to date experiments of this sort have not been sufficiently encouraged. They are worthy, however, we are told, of the greatest interest, because diminishing the effect of the recoil, it is plain, would permit of the obtaining of initial velocities of 700 and 800, and perhaps up to 1,000, metres.

"*The Löbell.*" The Löbell of 1883, a German annual publication, is one of the important reviews contained in the mentioned numbers. For ten or more years past, the fame of this yearly contribution to military science has been on the increase, so that the appearance of the book, we are told, is looked forward to with great anxiety, not only in Germany, but elsewhere. The work is divided into three parts : I. Studies on the Various Motions. II. Military Science. III. Historical Résumé of the Past Year, under a Military Point of View.

"*Aërial Navigation.*" The successful experiments at Chalais, France, by Captains Renard and Krebs with their balloon in August last, naturally direct attention to this subject as a factor in future military operations. Had Benedeck, it is asserted, had a



balloon at his command upon the battle-field of Sadowa, he would not have been the victim of the *surprise* which caused his defeat. The spherical form of the balloon is preferred, and methods are discussed for a military organization of aerial navigation to accompany armies in the field. The least of these proposed balloons is one having a capacity of 523.33 cubic metres, with a diameter, therefore, of about ten (10) metres. This could easily carry four persons, and reconnoissances made. Pure hydrogen gas is preferred to all others. This article concludes by saying that it would be well to study what profit, if any, could be derived from the compressibility of hydrogen gas, so as to carry it along already manufactured. Subjecting the gas to a pressure of twenty atmospheres, for example, 100 cubic metres of the substance could be carried in a receptacle of only five cubic metres, and thus the gas-receivers alone would, very nearly, represent all of the weight to be carried—100 cubic metres of hydrogen gas hardly weighing nine kilogrammes.

"*Military Hospitals.*" The construction, etc., of military hospitals is a long and somewhat prosy article. Many important data, however, founded upon experience, are given. Six hundred is the maximum number of beds allowed in one building or in buildings grouped under one administration. Number of attendants to this number of beds, one hundred and sixty; allowance of space from fifty to sixty cubic metres per bed. The cost of military hospitals in Italy is estimated at between four thousand and five thousand francs per bed. The less number of patients in any one room the better sanitary results are, of course, claimed; the number of patients in no case, however, to exceed thirty in any one room. The rooms should be perfectly independent of each other, and each should admit of light and air independently of the others—thus a partition between two rooms with communicating doors does not answer, as in this case the air of one room can circulate freely in that of the other, and the two or more rooms thus connected are in effect one.

"*Steel Shields for Light Batteries.*" This subject is ably discussed. Steel shields, so attached as to form part of the gun-carriages of field batteries, are strongly recommended as a protection to the gunners from bullets and the smaller fragments of shells. Such a measure had been proposed long ago by the illustrious General Cavalli, and experiments had been made in the presence of King Charles Albert forty years ago, but they were abandoned. As artillery in future wars will have to approach, much nearer than heretofore, well-fortified defensive lines or intrenched positions, it is only fair that the gunners should be somewhat protected or covered, more especially in the act of coming into battery, at which time the losses would now be most seriously felt. The shield made into a component part of the gun-carriage will shield the cannoneers on the limbers being removed. A greater liberty in the choice of positions, it is argued, will be enjoyed, while much greater independence, and even bolder actions, with proportionately less losses, will result. The artillery will no longer be tied down to its infantry supports, and, therefore, the writer of this article advises young officers of artillery not to look with disfavor upon this suggestion; but, on the contrary, to make a thorough study of it—it being certain that, with the greater independence thus obtained, greater personal valor will be displayed and greater deeds achieved by the artillery upon the battle-fields of the future.

L. L.

**Proceedings of the Royal Artillery Institution (August).** "*Calculation of Trajectories in Direct and Curved Fire,*" by Prof. Greenhill, presents modifications of Bashforth's and Niven's Ballistic Tables, illustrated by a wider range of practical examples of their application than found in other similar papers and tables. They are thus more readily utilized. The diagrams of comparative curves of the resistance of the air for different velocities are interesting in presenting graphically the values for

projectiles whose ogival points are of a radius of curvature of 1.5 to 2.0 diameters respectively. The last is the German service form, whilst the former is that of our own as well as the English. Between velocities of 1,100 and 2,300 feet, the English service projectile meets with a resistance as great as that met with by projectiles of the German service form, moving with velocities greater by from 50 to 100 feet per second. The magnitude of this difference is more apparent when one bears in mind that, within this range of velocities the resistance of the air varies about as the *square* of the velocities. Conservative as are the English in changing the details of their armament, they have adopted, comparatively recently, a radius of curvature of 2.0 diameters for the points of projectiles of the largest calibres. Our own authorities will doubtless adopt this form of point when we can obtain modern guns.

"*Notes on the Purchasing, Distribution, and Care of Royal Artillery Remounts*," by Col. F. G. Ravenhill, R. A., are of especial value to officers of cavalry, light artillery, and quartermaster's department.

The following brief extract from the translations by Lt. J. M. Grierson, R.A., commends itself to attention. "The most interesting paper of the number is, perhaps, the last, by Archduke John, on '*Drill or Military Education*,' in which he declares himself for the education of the morale of the soldier rather than his being drilled into a machine. He says that drill has come to be looked upon as a talisman, as the sole cause of success in warfare, and that the theory that the German successes in 1870 were entirely due to their splendid drill and discipline has been commonly adopted and slavishly followed. This theory he combats, saying that the German successes were due to the high feeling of duty, the strength of will, and the staying power, shown by all ranks, rather than mere drill. In his own words:—'In Prussia, parade drill is a luxury which the Prussians can allow themselves, although they do not go altogether unpunished for it' (St. Privat), 'while with us it is a sin.'"

"*The Egyptian Campaign in 1801*," by Major S. C. Pratt, R.A., is chiefly interesting in the details of a successful debarkation in the presence of an enemy, and the defeat of a force practically superior in numbers. This was owing, in a great measure, to Menon's scattered disposition of his forces, a disposition in marked contrast to that previously adopted by Napoleon. The successful desert march of General Baird's Indian contingent of 8,000 men, with artillery, etc., from Cosseir to Keneh, a distance of 140 miles, is of interest in view of the decision by Sir Garnet Wolseley to make the long detour of about 720 miles by the great bend of the Nile, rather than take the Korosko Desert route of about 240 miles. Whilst success in making the long march is still problematical, it is apparent that the Desert route would have been impracticable in the ordinary way of securing water supply by camel transport. General E. L. Molineux has made the valuable suggestion that the Korosko Desert route could be made practicable by laying a pipe line from Korosko to Abu Hamed. This could be accomplished within a less time than that occupied in making the great detour by the bend, and ensuring the shortest line both for further supplies and a possible retreat or withdrawal.

In extracts from notes on "*Artillery in Irregular Warfare*," made by General C. C. Gordon, it appears that he discountenances the use of artillery with movable columns against savage tribes, as being more encumbrance on the march than is compensated for by the results obtained. This appears to be supported by the following extracts: \* \* \* "As for the effects of Artillery fire, the accounts differ. I have a report from good authority that five natives were killed and five wounded by Artillery-fire at Morosi's Mountain." \* \* \* "At Morosi's Mountain, 1,443 rounds of Artillery were fired." General Gordon commends the use of rockets against native tribes, but recognizes the possible deterioration during transportation. In recent accounts of the

engagement wherein Hicks Pacha was defeated, it is stated that the rockets acted as boomerangs and returned in their flight into the ranks of the troops. The following extract might have been applicable to our own service not many years ago. \* \* \*

"The paramount fault of the British Army—the fault which brings disaster on us—is the jealousy of the Army departments. The Engineers keep their *metier* a secret from the Infantry, the Ordnance Department keep their *metier* from the Artillery; and so this jealousy goes on through the Army, and will do so until the British Army gets a steam-hammer man like the Duke of Wellington, who will mash up all departments into one homogeneous mass, actuated by one spirit—that of the welfare of the whole Army, and not of the self-advancement of any particular department."

In translations by Captain E. B. Evans, R.A., from *Giornale di Artiglieria e Genio*, October, 1883, "*A Fuse with Twofold Action and a Universal Projectile for Field Artillery*" the relative values of shrapnel with central bursting charge, diaphragm shrapnel, common shell and case shot, are shown by the results of actual firing. The conclusions are that the diaphragm shrapnel is better than the shrapnel with central charge; that shrapnel is superior to common shell as 2 is to 1. Case shot are considered somewhat superior to the shrapnel, when required for rapid work at short ranges, the former being *more quickly manipulated*, although the effect of shrapnel with time fuse, *when fired*, is equal to that of case. Shrapnel with *percussion* fuses, at short range, "produces a considerable effect, but perhaps corresponds less to the requirements of defence at close quarters, because it produces an effect over too small an extent of front." The character of the ground, too, may be unfavorable for producing explosions by percussion. A case is cited where six shrapnel, with percussion fuse, were fired at 400 metres range, without a single explosion.

**Russian Artillery Journal**, Feb., 1884—"Précis and Translations," by Lt. J. M. Grierson, R.A. "*Trials of Watkins Range-finder*" as to practical working, greatest range obtainable, and mean errors. The instruments were considered somewhat heavy: the longest range obtainable, using telescope and in favorable weather, was about two miles: the mean error, at 2,500 feet, 21 feet; at 7,000 feet, 77 feet. The time required to take a range varied from four to seven minutes. The limit of ranges obtainable seems to indicate that this telemeter is not suitable for artillery.

"*On the Means of Sparing Draught Animals*," a lecture delivered in the Artillery Club, Stockholm, by Lt. G. Frumerie, Swedish Artillery, discusses the question of elastic and non-elastic connections between the drawer and the draught. The experiments given indicate a saving of twenty-six per cent. of the work done where the connection was elastic. Rubber buffers and springs were found undesirable, owing to changes resulting from weather. The metallic springs were found objectionable in that dirt and pebbles would interfere with the working of the springs. It would appear that this difficulty might be overcome if the springs were enclosed in a jacket.

E. L. Z.

**Professional Papers, C. R. E.**, Vol. IX. A paper of interest is on "*Machine Sapping*." The conditions which appear most necessary are that:—1. The machine must be light enough to be handled and controlled by one or two men. 2. It must be fully protected by the cover it digs for itself. 3. It must throw the soil out well in advance to cover itself, and the throw of the soil must be controllable as in hand labor. 4. It should feed itself up to its work. 5. It must be capable of easy deviation from a straight line right or left, work deep or shallow in order to turn obstacles or a corner, or widen out a section. 6. It should be easily arranged to throw the soil to the right or left. 7. Heavy machines should be self-moving backward as well as forward. 8. The machine must be capable of easy adaptation to work in various classes of soil

with respect to cutting tools and rate of advance. Suitable drawings of the proposed machine accompany the article.

Another paper of interest is the "*Fortress War Game*." The object of this is "to represent the conditions of the attack and defence with as close an approach as possible to the reality, and to obtain the best kind of teaching on the subject. Instruction as to the proper mode of employing artillery in the attack and defence may be considered as a main feature of the game."

**Monthly Weather Review.** In *April* last was begun the consolidation on the same chart of the storms of North America and the North Atlantic. The chart improved in accuracy and fulness from month to month, and in October another important feature—the want of which has been felt—was introduced by indicating the *intensity* of the storm. This is done by simply making the size of the storm-track correspond to the intensity. The greater the intensity the heavier the line. The *October* number gains, too, by having an additional chart showing the tracks of the high barometers. It is a matter of common record that precipitation is almost wholly on the westerly slope of the high barometer, and not unusually does not extend beyond or quite to the centre of depression. Certainly the anti-cyclone movement seems important in determining the direction and rate of progress of storms. The high-barometer movements have always been described, but hitherto not charted. The monthly average percentage of verification for the four elements—barometer, temperature, wind, and weather forecasts—for the year ending July 1, 1876, was 88.2, and the annual report stated that "an average of 90 per cent. of accuracy is believed to be attainable." For the six years, from July, 1878, to July, 1884, the average percentage of verification was 86.6, and the highest record was for 1883, reaching 88., which is not quite up to the record of 1876. For the ten months beginning with January, 1884, the monthly average will not exceed 84. It is, therefore, manifest that the hope expressed in 1876 has not yet been realized, and that greater attention is necessary to be given to those exceptional cases when apparently like conditions do not yield like results. Among the observations which are considered desirable, but which are not obligatory, but at the same time may be undertaken, many had hoped that records would be made of solar and earth's radiation and atmospheric electricity. It is to be regretted that since the great progress made in the collection of meteorological facts there has not appeared a full treatise or text-book on the subject. Aside from the valuable deductions of Prof. Loomis, the "*Professional Papers*," and "*Notes*" of the Signal-Bureau, and some papers on Tornadoes, by Mr. Davis, there is but small contribution available for the student. We do, indeed, find in the "*Encyclopedia Britannica*," by Mr. Buchan and Prof. Balfour Stewart, almost a complete treatise, and this is the most exhaustive and valuable work that has been done in the light of the recent development of the facts of the science.

R. C.

## CORRESPONDENCE.

### I.

#### THE BRITISH SQUARE.

It has become an axiom that the English are nothing if not conservative. It sounds like a page from ancient history—this advance of General Stewart's toward Metemneh, with his command formed in a hollow square. The fact that so accomplished a soldier as General Wolseley permitted such a formation proves, among other things, that the war in Egypt is of the character of the old warfare, and that no new lessons for the modern soldier are to be learned there. The following extract, from a prominent New York daily, is wide of the mark when it implies that any new features as to this obsolete formation are likely to be discovered.

Gen. Stewart's square at Abu-Klea has been less fortunate than that which resisted the Mameluke charge at the battle of the Pyramids, where Napoleon gave his famous order to "form square with the scientists and asses in the centre." Its experience, however, contradicts the theory held by so many critics that an infantry square is practically ruined when once penetrated by the enemy. When completely broken up by cavalry it might be so, but squares have been pierced again and again without losing their coherency or power of resistance. A striking instance of this occurred during the Peninsular battle of Talavera, where there was some severe hand-to-hand fighting. "Well, Sergeant," asked Sir Thomas Picton, after the battle, addressing a non-commissioned officer of the famous Irish brigade who had become proverbial for his reckless courage, "how came you to let those French rascals break into that square of yours to-day?" "Faith, your Honor," answered the veteran with stern significance, "the spalpeens did get in, sure enough, but bedad they never got out again."

The fate of the square is fixed. It may do in a warfare with barbarians. It would be suicidal in a war between nations advanced in the means and lessons of modern battles.

By cable we learn that the military experts in London are freely criticising this formation even against the Arabs of Egypt. The objections to the square, as urged by General Hamley, are beyond contradiction, so far as the usual battle array is concerned. He is reported as insisting "that unless the front rank is lying down, a position it could not maintain when the enemy comes close to the sides attacked, it delivers a fire small in proportion to the number of rifles, while the sides not attacked deliver none." Thus it is patent that, as battles are usually fought in the formation in squares, three fourths of the force cannot be used aggressively, one half of it is enfiladed by the enemy's fire, and one fourth has its back to the foe—a disagreeable position at any time for a soldier. General Hamley says further: "Should the square be penetrated, it becomes a mob." In this we cannot agree. With modern arms, a broken square becomes a very formidable enemy, if rallied in groups as skirmishers.

The effectiveness of these groups, if well managed, and the soldier is endowed with the cool courage that characterizes the Anglo-Saxon, is a powerful argument for formations other than the square, even against a semi-civilized foe.

The advantages of the square in fighting these people in ancient times, as well as in ours, must be apparent in the order mentioned as given by the first Napoleon—as a means of protecting the supplies, ammunition, and *impedimenta* generally. No one who has fought our indigenous enemy—the Indian—can fail to understand how valuable this formation in square would be in a campaign against a numerous enemy which has no particular base and as many lines of retreat as there are points in the compass. I have seen a force of little more than three hundred Indians encompass a command of about three thousand soldiers in position, and, in the course of an engagement, feel every point of the position with a view to breaking the weaker portion of the defence. A favorite method of fighting on the part of our Indians is to engage the front with a small force, while numbers move to the attack of the flanks and rear of the attacking party. As has been said, there is no “*rear*” in an Indian engagement. Resulting from this method of fighting on the part of Indians, it is notorious in our history of Indian wars that an inferior force surrounded by this wily foe, unless it has good cover, is usually annihilated.

And here let me remark, that in all affairs with Indians in our late wars those troops which in defence concentrated on high ground without ample cover have without exception, I believe, been annihilated. In the Fetterman massacre, our troops, occupying an elevated ridge—in a formation which did not differ materially from a square of skirmishers—were picked off by the Indians, who crept up under cover from all sides, until all were destroyed. The same thing occurred at the Custer massacre. The remnant of this command, which was detached, was only saved from destruction by natural cover, a bowl-shaped hollow, which it fortunately found on the eminence where it had taken refuge. Thornburgh's command was only saved from destruction by the wagons, dead animals, and cover thrown up by the men after they were surrounded; and the horses destroyed by the Indians were shot from lower ground than that occupied by the command. The reverse of this holds true when small parties have taken shelter under good cover on lower ground than that surrounding, and they have held even greater numerical numbers at bay and escaped without serious loss. On the deserts of Egypt it is understood there is little natural cover either for those attacked or the attacking. In such a country one would think that with rifles of the increased range a double échelon, with baggage and supplies in the interior, and a well-arranged rear-guard would be the preferable formation. This formation would give an increased fire on all surrounding approaches, reduce the chances for an enemy to penetrate to the interior of the formation, and make it equally as impossible for those once in to get out, as in Sir Thomas Picton's square above mentioned.

It is futile to discuss these formations in connection with cavalry attacks. Cavalry, as such, will always have enough to do in future wars without attacking either well-formed squares or undismayed échelons. There are always times in battle when an attack can be made to advantage by an alert commander of this swift-moving arm,—always flanks exposed, lines of communication and supplies unprotected, formations broken up or much shaken either by victory or reverse,—and these are the cavalry-man's opportunities. I would not, however, be understood as conceding anything claimed for cavalry even against the best-devised formations. A great deal depends on the cavalry. At Winchester, in 1864, the Union cavalry rode over and defeated well-formed troops which had repulsed our infantry. Let those who doubt read or listen to the Confederate accounts of that battle.—[*A Field-Officer of Cavalry, Feb. 15, 1885.*]



## II.

## OUR ARMY.

The Army generally now needs one thing above all others—namely, a restoration to those high principles of honor and integrity without which no army in a free country can be good for any thing.

The great trouble with the Army is that it is made the *dump-pile* of politics, and this has gone on so long that nearly every Staff Department is so handicapped with dead timber that, as a gentleman some years ago told a late President: "You are laying up mighty poor timber out of which to make our future Quartermasters, Commissary- and Adjutant-Generals."

The bad quality of the material selected is not the worse feature of the case, for the whole body of the Army deteriorates in recognizing the fact that mediocrity is chosen in preference to merit. A Lieutenant (perhaps a 2d Lieutenant, if he has enough of the right kind of influence) is appointed a Captain in the staff over the heads of hundreds of other Lieutenants, very many of whom are vastly his superiors in every respect. As he intrigued for promotion, so now he intrigues for stations, and the same influences which gained him his appointment gains him now the posts he wants. The effect of this in military body can readily be understood.

If you think I give an exaggerated view of the condition of affairs in the Army, let me ask if you know of a *single case* of promotion by selection in the Army during the last twenty years, where the one selected was not obliged to support his claims, even when these were of the strongest, by the most tremendous of outside (political or family) influence.

A system which demands that even merit must degrade itself by resorting to the petty intrigues and truculencies made necessary to enable it to hold its own against incompetency and brazen assurance, will ruin any army in the world—nay, will ruin *any* profession. If it has not already ruined our Army it is probably because of the good material of which it is composed, but considerable progress has already been made in that direction, and time will complete the work unless some change is made in the system, and some sort of civil-service reform is introduced into the *military* body.—[*A Field-Officer of Infantry, New-Year's Day, 1885.*]

## III.

## THE JOURNAL AS AN AUTHORITY.

"All of us may well feel proud of the JOURNAL. I think the present (No. 20) the most attractive number in its contents, that I have seen. There is more variety, and it is sprightlier than some of the numbers. \* \* \*

"I am glad that there is so just and exact a standard as the Military Service Institution for the correction of popular errors concerning the War of the Rebellion, which even the best—i. e., the most interesting—of our books are constantly rehashing. But I look for a still greater advance, and want to see the standard of *military honor and morality* elevated to its earlier eminence in our service."—[*A Regimental Commander, December 31, 1884.*]

## CAMP CHES.

### LIBERTY & MURDER.

This mighty din of dynamite  
That shakes the world all round,  
Portends alas! That Freedom's fight  
Is falling to the ground.

Each murder, claiming Freedom's cause,  
Hurries her dying gasp;  
Each blow at Mahan's laws  
Affirms the Tyrant's grasp.

The cup of wrongs may be a bit  
O'er flowing—more than full;  
But this way of upsetting it  
Is Paddy's greatest Bull.

R. M. P.

January 24, 1885.

## SIXTH ANNUAL REPORT OF THE EXECUTIVE COUNCIL.

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THE MEMBERS OF THE MILITARY SERVICE INSTITUTION OF THE UNITED STATES.  
*Gentlemen:—*

On behalf of the Executive Council, I have the honor to submit the Annual Report for 1884.

### MEMBERSHIP.

Since last report four (4) Life Members and eighty-eight (88) Annual Members have joined the Institution.\* Eleven (11) have died, and one (1) has withdrawn. There are now enrolled six (6) Honorary Members, thirty-five (35) Life Members, and eight hundred and ninety (890) Annual Members; making an aggregate membership of nine hundred and thirty-one (931).

### TREASURY.

The Treasurer's Report for the year ending January 12, 1885, shows an amount on hand of one thousand seven hundred and thirty-three dollars and fifty-four cents (\$1,733.54). This includes the life-membership fund of seven hundred and eighty-one dollars (\$781.00).†

### PROFESSIONAL PAPERS.

The second series of monthly lectures has met with great favor. The Institution is under obligations to the able lecturers for their disinterested labor.

The number of essayists who competed for the Gold Medal of 1883 is an encouraging evidence of interest in this department of our work: the high literary and professional character of all the essays submitted should be a source of pride to the Service. Other papers of great scientific and historical value have also been published in the JOURNAL.

It is desired to print in each number of the JOURNAL such variety of papers as may be consistent with space and obligations to contributors.

### CORRESPONDENTS.

In addition to the Corresponding Members already provided for, invitations have been accepted by several distinguished European officers and American representatives abroad to act as Foreign Correspondents of Council. Thus, much valuable information on military progress may be obtained.

### THE LIBRARY.

The collection of Books and MSS. has been recently arranged for convenient reference; it has also been increased by special donations of curious and valuable works.

\* See Appendix A.

† See Appendix B.

## THE MUSEUM.

The collection of Arms and Armor, North American Indian Trophies, and Arctic Relics, has been enriched by many rare articles, accompanied by full descriptions.

The practice of depositing with the Institution, for safe-keeping, Battle-Flags and worn and tattered Regimental Colors (after condemnation by an Inspector), is commendable. This course insures for these historic relics the protection and public attention they deserve.

The Illustrated Catalogue of the Museum, referred to in last report, has just been completed. The labor of compilation was voluntary, and the expense of publication has been largely defrayed through the efforts of a few members. The limited edition printed will be distributed to Post Libraries, Contributors to the Museum, and otherwise, to secure further accessions to the collection.

WINFIELD S. HANCOCK,

*President Military Service Institution.*

GOVERNOR'S ISLAND, N. Y. H.,

February 4, 1885.

## (A.)

LIST OF MEMBERS WHO JOINED THE INSTITUTION  
FROM MARCH 1, 1884, TO FEBRUARY 1, 1885. (92.)

Abbot, C. W. jr., Lieut. 12th Inf.  
Adam, E., Capt. 5th Cav.  
Anderson, R. H., Lieut. 9th Inf.  
Arden, T. B., (late) Lieut. 7th Inf.

Banzhaf, C., (late) Lieut. 10th Cav.  
\* Bass, E. W., Prof. Mil. Academy.  
Bellinger, J. B., Lieut. 5th Cav.  
Bill, J. H., Major Med. Dept. Lt.-Col.  
Boggs, T. K., (late) Lieut. 14th Inf.  
Brayton, G. M., Major 15th Inf.  
Brewerton, G. D., (late) Lieut. 1st Inf.  
Briggs, F. O., (late) Lieut. 2d Inf.  
Brown, H. G., Capt. 12th Inf. M.  
Brown, P. R., Capt. Med. Dept.  
Brush, D. H., Lieut. 17th Inf.  
Byrne, E., (late) Capt. 10th Cav.  
Carr, E. A., Col. 6th Cav. M.-G.  
Cornish, G. A., Lieut. 15th Inf.  
Casey, E. W. Lieut. 22d Inf.

Davis, T. F., Lieut. 15th Inf.  
Dimmick, E. D., Capt. 9th Cav.  
Duff, R. J., Lieut. 8th Cav.

Egbert, H. C., Capt. 12th Inf. M.  
Evans, R. K., Lieut. 12th Inf.

Floyd, D. H., Capt. Q.-M. Dept.  
Fountain, S. W., Lieut. 8th Cav.

Goe, J. B., Lieut. 13th Inf.

Haight, E., (late) Capt. 16th Inf. Lt.-Col.  
Halloran, J., Capt. 12th Inf.  
Harvard, V., Capt. Med. Dept.  
Hay, L., Capt. 9th Inf.

Head, G. E., Capt. 3d Inf. M.  
Henry, G. V., Major 9th Cav. Col.  
Hoffman, W., Lieut. 11th Inf.  
Hooton, M., Capt. 22d Inf.

Kreps, J. F., Lieut. 22d Inf.  
King, R. jr., (late) Capt. 4th Arty. M.

Lissak, O. M., Lieut. 4th Arty.  
Lockwood, R. C., Lieut. 22d Inf.  
Lockwood, J. A., Lieut. 17th Inf.

Maddox, T. J. C. Lieut. Med. Dept.  
Male, W. H., (late) Lieut. 7th Inf. C.  
Martin, C., (late) Lieut. 24th Inf.  
Martin, J. W., Capt. 4th Cav.  
McCreery, J., Lieut. Med. Dept.  
Metcalf, W. M., Lieut. Ord. Dept.  
Millis, J., Lieut. Engineers.  
Mott, Lieut. 8th Inf.  
Munson, S., Capt. 9th Inf.

Noyes, H. E., Major 4th Cav.

Orton, S. H., (late) Lieut. Med. Dept. M.  
Osgood, C. H., Lieut. 12th Inf.

Paddock, G. H., Lieut. 5th Cav.  
Parker, D. W., (late) Lieut. 6th Cav.  
Parnell, W. R., Capt. 1st Cav. Lt.-Col.  
Patterson, R. H., Lieut. 1st Arty.  
Pond, G. E., Capt. Q.-M. Dept.  
Post, J. C., Capt. Engineers.  
Potter, J. B. M., Lieut.-Col. (retired).

Quinton, W., Capt. 7th Inf.

Randall, G. M., Capt. 23d Inf. M.  
Rittenhouse, B. F., Capt. (retired). M.

\* Life Member.

Roberts, H. L., Lieut. 15th Inf.  
 Rockwell, C. H., Lieut. 5th Cav.  
 Rodney, G. B., Capt. 4th Arty.  
 Roudiez, L. S., Lieut. 15th Inf.  
 Royal, W. B., Col. 4th Cav.  
 Sayre, F., Lieut. 8th Cav.  
 Scriven, G. P., Lieut. 3d Arty.  
 Selon, J. L., Lieut. 4th Inf.  
 Shepherd, O. L., Col. (retired), B. G.  
 Sibert, W. L., Lieut. Engineers.  
 Simpson, G. W., Chaplain U. S. A.  
 Smith, F. A., Lieut. 12th Inf.  
 Smith, T. M. K., Capt. 23d Inf.  
 Stedman, C. A., Lieut. 9th Cav.  
 Stemble, J. McB., Lieut. 9th Inf.  
 Stone, E. W., Capt. 21st Inf. Lt.-Col.

Styer, H. D., Lieut. 21st Inf.  
 Swaine, P. T., Col. 22d Inf.  
 Swift E., Lieut. 5th Cav.

\* Tisdall, W. N., Capt. 1st Inf.

\* Wagner, A. L., Lieut. 6th Inf. (Prize Essayist, 1883.)

\* Webb, A. S., (late) Lieut.-Col. 5th Inf. M.-G. Webster, J. McA., Lieut. 22d Inf.

West, F., Lieut. 6th Cav.

Whitside, S. M., Capt. 6th Cav. M.

Wills, J. H., Lieut. 22d Inf.

Wilson, G. S., Lieut. 12th Inf.

Woodruff, C. A., Capt. 2d Arty. Lt.-Col.

Woodruff, E. C., Capt. 12th Inf. M.

Wotherspoon, W. W., Lieut. 12th Inf.

## CASUALTIES.

## DIED.

Brig.-Gen. Benjamin Alvord (retired).  
 Col. John M. Cuyler (retired). B.-G.  
 Col. Henry W. Benham (retired). M.-G.  
 Col. William Hoffman (retired). M.-G.  
 Col. Geo. A. H. Blake (retired). B.-G.  
 Col. Daniel Huston, jr. (retired).

Major Joseph Bush (retired).  
 Major Edward Ball (retired).  
 Capt. E. E. Sellers, 10th Inf.  
 Capt. William P. Clark, 2d Cav.  
 Lieut. Theodore Smith, 15th Inf.

## RESIGNED.

Major Nicholas Vedder (retired).

Total Membership (date) 931.

Honorary, 6, Life, 35. Annual, 890.

## RECEIVED IN EXCHANGE.

*Journal of the Royal United Service Institution.* (London.) Vol. XXVIII., No. 126.  
*Proceedings of the Royal Artillery Institution.* (Woolwich.) Nov. and Dec., 1884, and Jan., 1885.  
*Kongl. Krigsvetenskaps-Akademiens.* (Stockholm.) Nov. and Dec., 1884, and Jan., 1885.  
*Memorial de Artilleria* (Madrid.) Nov. and Dec., 1884, and Jan., 1885.  
*Rivista di Artiglieria e Genio.* (Roma.) Oct., Nov., and Dec., 1884.  
*Journal of the United Service Institution of India.* Vol. VIII., No. 61.  
*Harper's New Monthly Magazine.* (New York.) Jan., Feb., and March, 1885. Harper & Bros.  
*The Century.* (New York.) Jan., Feb., and March, 1885. The Century Company.  
*St. Nicholas.* (New York.) Jan., Feb., and March, 1885. The Century Company.  
*The Magazine of American History.* (New York.) Jan., Feb., and March, 1885. Hist. Pub. Co.  
*The Popular Science Monthly.* (New York.) Jan., Feb., and March, 1885. D. Appleton & Co.  
*Van Nostrand's Engineering Magazine.* (New York.) Jan., Feb., and March, 1885. D. Van Nostrand.  
*Science.* (Cambridge, Mass.) Nos. 98-109. The Science Company.  
*Monthly Weather Review.* War Department. (Washington.) Nov. and Dec., 1884.  
*The United Service.* Vol. XII., Nos. 1, 2, and 3. (New York.) T. H. S. Hamersly.  
*Appletons' Literary Bulletin.* Jan. and Feb., 1885.  
*The Army and Navy Journal.* (New York.) W. C. & F. P. Church. To date.  
*The Army and Navy Register.* (Washington.) Army and Navy Register Pub. Co. To date.  
*The Sunday Herald.* (Washington.) I. N. Burritt. To date.  
*Harper's Weekly.* (New York.) Harper & Bros. To date.  
*The Churchman.* (New York.) To date.  
*New York Shipping Gazette.* (New York.) To date.

## (B.)

## TREASURER'S STATEMENT OF MONEYS RECEIVED AND EXPENDED FROM MARCH 1, 1884, TO JANUARY 12, 1885.

RECEIVED.		EXPENDED.	
Balance on hand last report, March 1, 1884.	Cash \$1,085 50 Bonds 478 00	For printing and binding the JOURNAL	\$2,143 59
Annual dues from members.		For printing and binding the Catalogue	1,000 00
For life membership	\$1,838 50	For stationery and printing	429 65
From subscribers	75 00	Commission on subscriptions and advertisements in JOURNAL	94 58
From advertisers in JOURNAL	591 75	Commission on advertisements in Catalogue	269 25
From advertisers in museum catalogue	669 00	For gold medal (prize essayist)	90 00
Donated	1,564 50	For miscellaneous office expenses	129 23
Sales of catalogues, etc.	75 00	For postage and express charges	250 20
Interest on U. S. Bonds	3 00	Compensation for janitor	107 10
		For the library	37 88
		For the museum	133 32
		Balance on hand January 12, 1885	\$4,674 80
			1,733 54
			\$6,408 34
		Invested in U. S. Bonds	\$781 00
		Cash in Bank of North America	932 41
		Cash	20 13
			\$1,733 54

OFFICE OF THE TREASURER, M. S. I. U. S.,  
Governor's Island, January 14, 1885.

A. W. VOGDES, 1st Lieut. 5th Artillery,  
Treasurer.



## POST SCRIPTUM.

The following extracts from the *Army and Navy Journal*, and comment thereon, are published for the information of all concerned.

*To the Editor of the Army and Navy Journal:*

Please correct the following errors in your report of what I said at the meeting of the Military Service Institution on Feb. 12th. I did not "doubt the practicability of using dynamite in shells," but only the expediency of so doing when there are known explosives of greater strength much better suited for the purpose. The common shell of the 16-inch 100-ton gun carries 75 lbs., for the battering shell carries only about one third that amount, and the latter would have to be used to secure penetration, which is a necessary condition of success. I did not assert that 1000 lbs. of dynamite is necessary to pierce the armor (24 inches) of the *Inflexible*. The best formula we have calls for that amount, but as it is based on experiments on plates not exceeding 5 inches in thickness, it would be rash to make such an assertion. That no armor (?) which can be projected in shells, unaided by penetration, is able to destroy it, however, is quite certain.

Yours respectfully,

HENRY L. ABBOT, *Lieut.-Col. of Eng.*

The errors were those of the daily papers, from which we copied our report—to save the sensibilities of the Secretary of the Military Service Institution, who objected to the correct reports we have heretofore been able to give of the papers read before the Institution, through the courtesy of their authors. In this connection we would respectfully recommend the Council of the Institution, some day when they are searching the Scriptures, to read Matt., chap. v., 14, 15 vv.—*Editor Army and Navy Journal.*

THE MILITARY SERVICE INSTITUTION, and the *Army and Navy Journal*, are both laboring to promote the military interests of the country. They are, in fact, of advantage to each other, and ought to work together for the common good. The former has invariably treated the latter with marked consideration. To every General Meeting of THE MILITARY SERVICE INSTITUTION, held for lecture or discussion, the Editor of the *Army and Navy Journal* has had a special invitation, which he knew covered the privilege of taking down *verbatim*, by himself or his stenographer, all or as much of what was read and said as he might deem desirable for his paper. Instead, however, of taking his own notes, he has sought to obtain the manuscripts of the Institution, to be published in his paper at his discretion, in whole or part and in such manner and form as he might choose.

The Institution, while inviting notes by the Press of its lectures and discussions, prefers to hold its manuscripts for full and authentic publication in its own JOURNAL.

The daily papers of New York City send reporters at their own expense to take notes of the lectures and discussions of this Institution. The subjects are always of special interest to military readers. If the *Army and Navy Journal* does not through its own reporters obtain correct records of our proceedings, its patrons are the losers, and this Institution is not to blame.

The confession of the Editor of the *Army and Navy Journal*, that he gets information upon important military subjects from the "daily papers," and gives currency, and from his position a certain stamp of authority, to errors, which he, as a *professional* editor, ought to prevent or correct, will be a painful surprise to many readers of our oldest military weekly.

Using Holy Writ as a vehicle for his jest, the Editor grows humorous, and cites the letter of the Scriptures, but his remarks cannot be said to overflow with the spirit of them.

GOVERNOR'S ISLAND, March 1, 1885.

JAMES. B. FRY,  
*Vice-Prest. and Ch. Pub. Com.*  
THEO. F. RODENBOUGH,  
*Secretary.*

## THE MILITARY SERVICE INSTITUTION OF THE UNITED STATES.\*

ONE of the agencies tending to the maintenance among us as a people of the military efficiency without which no nation, however protected by the seas and developed in the arts of peace, can avoid inviting aggression, or, if aggression come, can hope fitly to repel it, has been the formation, lately, in this country, of the Military Service Institution, represented in its present membership in this, its incipient stage, by more than a third of the officers of the army, by a quarterly magazine, and by a museum which is already the repository of many valuable objects conducive to the study of warfare, and of relics associated with the past military history of the country.

The interest which civilians should take in this Institution, and in all similar institutions, is the enlightening interest that all citizens should take in time of peace in whatever relates to the possibility of war, derived from the certainty that in the history of nations war is at times inevitable, and that it behooves every people, especially ours, which must mainly rely upon their citizen-soldiery in the event of a great war, to maintain nuclei of military knowledge and spirit, from the expansion of which in time of need will lie the greatest safety to the nation in any great warlike emergency. The academies at West Point and Annapolis, the veteran-volunteer organizations, the militia, are representative centres from which, in default of a large standing army, the nation can count upon for radiation of the knowledge and efficiency of which she may stand in need in war, and among these influences must now be reckoned the Military Service Institution of the United States.

This Institution, modelled in imitation of the United Service Institution of Great Britain, was begun in the city of New York on June 10, 1878, through a call signed by four officers of the army. The government has given the Institution the use of certain buildings for their purposes, including one for a museum, on Governor's Island, in New York Harbor. The intention is that when the Institution shall have acquired sufficient funds, its head-quarters shall be made more accessible by being in New York City.

The general design of the Institution, as stated in the preamble to its by-laws, "contemplates professional unity and improvement by correspondence, discussion, and the reading and publication of essays; the establishment of a military library and museum, and generally the promotion of the military interests of the United States." THE JOURNAL OF THE MILITARY SERVICE INSTITUTION OF THE UNITED STATES, as the quarterly which it publishes is entitled, is devoted to essays on military subjects, is sent to the military posts, and is largely disseminated among the regular army, the veteran volunteers, and the militia. The gold medal of the Institution is awarded annually to the writer of the best military essay presented by any one eligible to membership; first honorable mention is made of the next best essay, and second honorable mention of the next; and these best three of the competing essays are published in the JOURNAL. The Institution has courses of lectures on military subjects. Its museum on Governor's Island already possesses many valuable relics of the War of Independence, the War of 1812, the Mexican War, and the Civil War. The range of the museum's Indian relics is very extensive, and ancient and modern weapons are embraced in its catalogue. In important cities there are now representatives of its Committee on Accessions to the Museum (in Philadelphia, Col. George Meade, No. 309 Walnut Street), and through their agency, furthering the desires of generous and patriotic citizens, the museum will eventually represent a very fine and instructive collection.

The terms in which the request of the Institution for contributions is preferred do not represent an unwarranted expectation, seeing that every citizen is interested, for the sake of the country, in making the collection as large, fine, and instructive as possible. The Institution does not demand articles as gifts, although it would be grateful for such. It asks, in the public interest, merely for the loan or the gift of articles that may serve, as the Secretary of the Institution remarks in speaking of the general intention of the museum, to stimulate patriotism, invention, and historical research. It requests the loan or the gift of any article that may contribute to these laudable purposes, pledges itself for the cost of transportation of the articles, to place the name of the contributor conspicuously upon it, and if it be a loan, to return it promptly upon demand of the owner.

Can any one imagine that, as a civilian, he has no interest in this Institution? If so, let him reflect that the late war was fought chiefly by the citizen-soldiery of the United States. If he be patriotic, and far-seeing as well, he will at once perceive that

\* Reprinted from *The American*, Philadelphia, Jan. 31, 1885.

whatever conduces to the extension of the best technical knowledge of war goes to promote the interest of the whole people, and that around these publications, lectures, awards of prizes, this museum, with its relics of historic lives and deeds, of ancient and modern weapons, must cluster memories of the past and knowledge of the present conducive to continued greatness in the future.

The American people should bear in mind that, although they repudiate as dangerous to popular institutions, as history has shown, the idea of the maintenance of a large standing army for the country, yet that it is only upon the terms that the small standing army maintained at any given period shall be always of the highest efficiency, that there will be security in the event of a great war, that such an army shall be sufficient to leaven with instruction the mass of their militarily apt but relatively unmilitarily educated fellow-countrymen. Let the mere militia system in time of peace be assumed, for any period, as never so good, there must always be a large outstanding margin of efficiency which only men militarily trained by the education of a lifetime can adequately represent. It is true that by the law of probabilities some greater military talent will exist at any given period outside, rather than inside, of the roster of so relatively small a force as ours seems destined to be. Yet it is equally true that in the art of war technical training goes for so much that the talent beyond its sphere has rarely been able to make itself manifest. Again, it is equally true that as there is no test by which genius, or even talent, for the art of war can be detected in time of peace and accorded the place for instruction to which they are by nature entitled, men must, in default of this power of divination, be content to foster the study of the technique of war and to trust to Providence that the genius and talent may in the crisis be found among the chosen military few, and to rest satisfied with the assurance that even if they be not there found, when they emerge to light, as they inevitably will, whether within or outside of the chosen few, they will, through the technical art developed to their hands, be the better fitted for the great part they are destined to play.

There are men among us who will forecast the destiny of this nation at a bound. To them it stands to reason that no pent-up Utica will contract our powers, that the Isthmus of Panama is our manifest territorial destiny; therefore, that we need never look to the development of a thoroughly equipped large army. If one ask why this stands to reason, the reason is forthcoming. One learns that the conviction is derived from a sentiment of grandeur. The frog on the bank had exactly the same feeling just before it burst. It is vain to invite the attention of such an advocate to the fact that the body politic may become weak from overgrowth. Who should dare to forecast the future as certain? The best that the wisest can do is to forecast the probable, and while acting to further the right to admit to their own minds the existence of a large margin belonging to the possible. History teaches us that a nation territorially even greater than ours, lived in the arrogance of belief that it would never die, and died first of all in its members, extended over a large portion of the known globe, its dissolution all the more rapid and complete from the fact of its enormous extension. Its strength at the heart failed to vitalize its members, and it succumbed to what a Roman in the plenitude of its power would not have called its manifest destiny. Extension, it need hardly be said, is evidence of vitality at some period, but it is never at any period evidence of stability. The evidence of the latter lies elsewhere, if it have any existence at all. Rapidly acquired power and territorial expansion are to us, as to every other people, a danger to national safety, only to be counterbalanced by corresponding aggregate of public virtue.

Let us assume, what the view of every thinking man in the country would probably confirm, that the present boundaries of the United States are essentially those beyond which expansion might lead to disintegration, and that its great power will be consolidated virtually within those limits. The probability then is, that in the course of time powerful nations will occupy Mexico and South America. That they never will be able to cope in war with this nation is among the probabilities; for this nation occupies the most favored extensive belt for climate and soil upon the continent, and is peopled by an essentially homogeneous people. Assuming that we do not weaken ourselves by undue territorial expansion, and that the people continue as wise as they at present prove themselves at critical periods to be, no danger to this country, if at war with any probable combination of states upon this continent, seems reasonable. It does not follow from this prospect that our military system, both as to the regular army and as to the militia, should be abolished or neglected. On the contrary whatever tends to promote the interests of both, and to bring them to the highest state of efficiency, should be sedulously encouraged. We may be very sure that, even before the end of the world, there will be wars and rumors of wars, and that even here not only is the time of peace the best time for preparation for war, but that the best way to secure peace, whether in deterring from or in resenting molestation, is to be prepared for war.

B.

## THE MILITARY SERVICE INSTITUTION OF THE UNITED STATES

Composed of officers and ex-officers of the Regular Army, desirous of promoting the military interests of the country, has published (1884) five volumes of its transactions, in quarterly numbers. Also an illustrated Catalogue of its Museum. It offers, annually, a Gold Medal and Life Membership for the best Essay on a given theme. The War Department furnishes quarters, attendance, and transportation as follows:

[EXTRACT FROM ARMY REGULATIONS.]

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### THE JOURNAL

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